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Vol 4 No 22



CBM revamps C64 package

COMMODORE will in two weeks announce a new pricing deal for its Commodore 64 micro

The machine is to be offered in a bundled package together with the C2N data recorder joystick and the game *International Soccer*, all for a recommended price of £199

The package will become available after the Commodore Show to be held between June 7 and 9

The new deal will be Commodore UK's first steps to promote its top-selling C64 model after seeing disillusionment and heavy discounting by some high street stores

Reaction has so far been favourable from the independent retailers who have been hit over the last few months by the major high street chains discounting the C64 from £199 down as low as £149 One dealer commented typically: "It seems a good idea – the C64 is a top-seller and this pack will stabilise the market and get the machine going again "

continued on page 4 ▶

Toshiba unveils new MSX

TOSHIBA has been the first of the giant Japanese electronics companies to unveil its new second-generation MSX micros

The other MSX manufacturers are expected to follow suit and announce up-graded machines in the next few months

Last week Toshiba exhibited to the trade one new model, the HX 22, and previewed a prototype of a second, the HX-23

The HX-22 features 80K Ram made up of 64K plus 16K disc Ram and 64K Rom With in the Rom, 32K is taken up with MSX *Basic*, and the rest is divided between a built in word processor and Basic controlling the built-in RS232 interface

The wordprocessor is *Bank Street Writer* originally developed for IBM PC and Apple micros The machine also has two cartridge slots as opposed to one on the earlier HX 10, an RGB output, and stereo sound.

"The HX-22 will be available in September, priced around £270," said Dennis Anderson, Toshiba UK's business development manager

"The *Bank Street Writer* word processor is also being offered in Rom cartridge form for the HX-10" An

continued on page 4 ▶

Martial arts from Melbourne

THE WAY of the Exploding Fist is a new martial arts simulation from Melbourne House

The screen is set against various oriental backgrounds which change according to how skilful you become Options include playing against the computer, or combatting another player The eventual aim is to achieve the status of Shaolin Monk.

The Way of the Exploding Fist will be launched for the Commodore 64 next month Spectrum and Amstrad versions are set to follow in July The program will cost £9 95 on Commodore and Amstrad, and £8 95 on Spectrum







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Vol 4 No 22



View

It is over a year ago now that the Japanese electronics companies first announced their MSX machines.

At the time much was made of the rather 'old-fashioned' design of their expensive 8-bit 'standard'.

Its technology was frozen, at a time when the competitors were advancing fast. Sinclair had already produced the first low-cost 16-bit machine, the QL, and others looked set to follow.

Twelve months later, it *is* true MSX has failed to make significant in-roads into the market. But, equally, technology has not advanced quite as was predicted. The QL, largely for reasons unrelated to its technical superiority, has not had the impact that was expected. And it hasn't been joined by other 16-bit micros. This year will be dominated by 128K versions of existing 8-bit micros.

Yet while nothing much is happening technologically, MSX begins to look more attractive. The prices of MSX '2' are more competitive and purely from a stand-point of manufacturing expertise, the Japanese stand head and shoulders above the British and US competition.

The great strength of the UK micro manufacturers has always been the speed with which they react to new hardware developments.

Sadly, they now seem temporarily to have lost their way, and in so doing are handing their competitors a useful breathing space.

Sinclair, particularly, after the less than overwhelming progress of its QL model seems to have lost confidence. The expected 128K Spectrum – based on a design that is now over three years old – is a safe move and the Toshibas, JVCs, Mitsubishis and Panasonics must be well pleased.

Presents . . .

Futures . . .

Amstrad Star Game – can you rise to the challenge of Cycloid Attack and save the Earth . . . make your programs unbreakable on the BBC B

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Computer Trade Association Magazine of the Year

Dragon joins the 128K set

THE LATEST micro to join the 128K bandwagon is the Dragon.

Eurohard, the Spanish company which bought the Dragon name and which manufactured Dragon 64s in Spain, has been working on a 128K model since last autumn.

But Compusense, UK distributor for the new Spanish-built Dragons, has just taken delivery of a British-built 128K machine. The machine is basically a Dragon 64 with extra memory chips added: the Dragon 64's SAM chip already has the capacity for banking extra memory.

Compusense hopes to be able to offer up-grades of existing Dragon 64s to 128K machines. In addition Compusense seems likely to be offering an up-grade service for existing Dragon 32 owners, but only to 96K.

Compusense has also signed a deal with Race Electronics to provide a national repair service for Dragons.

The deal also means that Compusense will be distributing a number of Race's hardware add-ons including Rom boards, an RS232 interface unit and an Eprom programmer.

Race also has a floppy tape microdrive system compatible with the Dragon which Compusense will be selling.

Psion's Chess on Macintosh

PSION's highly acclaimed *3D Chess* program on the Sinclair QL has now been launched for the Apple Macintosh at £49.95. It is Psion's first game for the Mac, and comes with an openings book containing 4000 moves.

The game itself has 28 levels of play, and can be played in six languages – English, French, German, Italian, Spanish or Swedish.

Toshiba unveils new MSX

◀ continued from page 1

RS232C communications cartridge will also be available to HX-10 owners wishing to up-grade.

"The HX-23 is the same as the HX-22 but with an additional 128K of video Ram," Dennis continued. "This model is not yet out in Japan, but is due for release there probably next year. The video Ram, and consequently much higher resolution graphics is a standard MSX development, and also preserves upwards compatibility with the original machines."

Toshiba also showed its vertically-designed single disc drive, the HX-F101. Price details have yet to be finalised but it should be available within the next month. It addresses single-sided 3½ inch discs, with an unformatted capacity of 500K (360K formatted). The drive will be packaged complete with interface.

While Toshiba executives were reluctant to term the new machines 'MSX mark 2', machines in the pipeline from other MSX companies planned for launch nearer the end of year following the same up-grade path.

Mitsubishi's MSX 2 which additionally features a separate numeric keypad has been developed in prototype form, but was not on public display last week. Representatives confirmed that the new model is set for a UK launch, but declined to give any further details. The company also showed a new 3½ inch disc drive, available with controller in September at £350. Unlike Toshiba's, the Mitsubishi disc drive is double-sided, double-density, and up-gradeable to a double drive for £70-£80.

Neither JVC nor Sanyo exhibited their MSX 2 models, but both confirmed they would be continuing with MSX in this country.

"Our MSX 2 is now finalised, but not yet ready for launch," said Pieter Glas, JVC's computer sales executive. "It will feature twin cartridge ports, a higher resolution 80-column screen, much improved graphics, and a wider choice of colours." As well as this bigger Ram capacity micro JVC is also working on video discs and separate numeric keypads to link with its MSX for the education market. Its new disc drive, available within two to three months, is a single-sided, double-density model, which will cost slightly over £300.

Sanyo's business machines' general manager Derrick Maddern commented, "We have deliberately not yet launched our MSX 2, simply because there are lots of MSX 1s in the stores to be moved through. We hope to bring it out by the end of the year."

continued on page 5 ▶

Ocean links with Konami

OCEAN Software is to release home micro versions of a number of highly successful coin-operated arcade games.

The Manchester-based company has signed a deal with the Japanese arcade company Konami, to acquire European rights to eight of its games. Ocean will convert the titles for the Spectrum, Amstrad and Commodore 64.

All of the Konami titles will be published under Ocean's Imagine label.

Hypersports will be the first conversion to appear next month to be followed in July by *Konami's Tennis*.

Four further titles, *Yie Ar Kung Fu*, *Hyper Rally*, *Konami's Golf* and *Konami's Ping Pong* are scheduled for an early Autumn launch, with *Mike* – a game set in a school classroom – and *Comic Bakery* set for the end of the year.

Prices have been set at £7.95 for the Spectrum and £8.95 on C64 and Amstrad.

Commodore revamps C64 package

◀ continued from page 1

The new C64 pack has also found favour with the multiple stores. Boots' Peter Frost said, "We feel that the idea of a starter pack is a good one, especially as so many computers are still bought as presents. The consumer is now getting good value." However, Boots has still not made a final decision to continue taking the Commodore 64.

A spokesman for Commodore UK confirmed that the aims of the package were to stabilise the market. "We also want to break the traditional seasonality of the computer market, and encourage sales in an out-of-season period."

The bundling of the Commodore 64 with C2N, joystick and one game title is apparently only the first of a number of promotions planned by Commodore.

Amstrad sales soar in France

AS AMSTRAD consolidates its position in the UK home market, with the CPC 664 now in the shops, the CPC 464 has become one of the fastest selling computers in France

Amstrad now claims a fifty per cent share of the French market, which was previously dominated by the French company Thompson, and the British developed Oric machines

Amstrad has sold around 60,000 computers in France this year, and launched the 664 there at the Special Sicob exhibition in Paris earlier this month.

"France has been an amazing market for us," said William Poel of Amsoft.

"We do have an advantage in that we can move stock quickly into markets, since the computer with built in monitor can be transported easily from country to country – no conversion of video output is needed "

Firebird set date for C64 Elite

FIREBIRD has now set a firm date for release of its Commodore 64 version of *Elite*, now several weeks delayed

Elite on the 64

The company bought the rights to the game for the Commodore from Acornsoft, which made *Elite* such a success last year for the BBC B

"The official release date is June 12th, and that's a definite," said Firebird publisher Herbert Wright, "The reason for the delay has been ironing out the final bugs "

Elite on the C64 will be priced at £14 95 (cassette) and £17 95 (disc), the title comprising part of Firebird's 'Gold' range

The Spectrum and Amstrad versions of *Elite* are due for release in July

New MSX is on the way

◄ continued from page 4

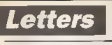
Also ready by the end of 1985 will be Sanyo's single 360K disc drive, up-gradeable to a twin model The drive will be offered in a package including an implementation of MS-DOS in a cartridge interface. "The price is not yet fixed, but it will be higher than most," Derrick continued

Pioneer, Samsung and Teleton, which have yet to launch their first generation micros in the UK would not commit themselves to a definite release date here, but stressed that if the market looked favourably towards MSX, they would move quickly.

Pioneer's PX-7 model looks likely to be offered as a package comprising the micro, PX JY8 joystick and PX-TB7 graphics tablet at £398 90. On its own, the PX-7 would cost £299 99 Samsung's SPC800 is currently being aimed only at the US market.

Welch moves at Commodoxe

COMMODORE has appointed Paul Welch as marketing and consumer sales manager in the UK a newly created post He will partly replace David Gerrard, who was marketing manager before leaving a month ago to take up a position with STC in the US Paul Welch has been UK sales manager at Commodore for the last three years



In reverse

I am writing regarding the article (March 14 issue) showing how to build the *Popular* buggy

I have since built this project and, having messed about a bit, I have found that by using two more of the data lines connected to four 5 volt relays, it is possible to enable the trolley to both reverse, and turn on its own axis, rather than on a radius All this can be had for the sum of six pounds more (for the relays) and the use of two more of the available data lines plus a small mod to the circuit diagram It takes about an hour or so's work and I feel that it is well worth the effort. I have therefore enclosed a copy of the additional circuitry required to achieve this

The mods are, to take two more data lines, D2 and D3 from the edge connector, and solder D2 to Pin 11 of the 74LS378, and solder D3 to Pin 6 of the same chip

Take a flying lead from Pin 10 of the 378 to Pin 3 of the ULN2803 and another from Pin 7 of the 378 to Pin 4 of the ULN2803 Also, disconnect the battery from the ULN2803, and replace it with the 5 volt line and the 0 volt line from the edge connector

Take one of the data lines to one of the terminals of the relay, as shown in the diagram Then repeat for the remaining three data lines, and relays Take the 5 volt line to each of the relays, as shown Connect one wire from each motor to a relay

Now, using the batteries, wire the positive to each of the relays in turn, and again with the negative line

Finally, connect the whole thing up and, according to how you wired up the relays to the motors, various combinations of numbers should enable the trolley to go forwards, reverse, left turn, right turn, left spin, right spin The best way is to experiment to see what numbers make what happen. It is simple to modify the program to recognise the new commands, ie·

F = forwards, *R* = reverse, *L* = left spin,

R = right spin, *C* = right turn, and *A* = left turn.

To achieve a spin, put one motor in forward and one motor in reverse To get a turn, use one motor on and one off

Have lots of fun, and if there's any problems, drop me a line, I'll try to help, if I can.

Dennis Green
35 Luther Road
Winton
Bournemouth
Dorset

More expensive

Why are Commodore 64 programs nearly always £1 more expensive than the Spectrum equivalent?

Surely they can't be any more difficult to program on the 64 than on the Spectrum.

It seems to me that as the 64 is a more expensive machine, the software houses think the owners can afford to pay out more than Spectrum owners.

Simon Hall
28 Upper Rose Hill
Dorking
Surrey RH4 2EB

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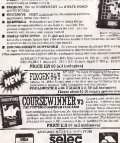
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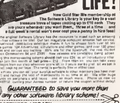
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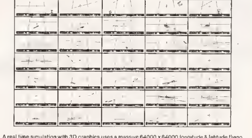
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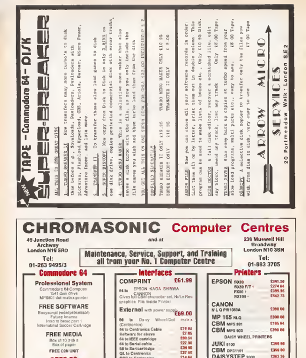
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COMMODORE 64 GUARANTEED FOR 2 YEARS

In graphic detail

***Jane Leigh** talks to computer graphics artist extreordinaire Terry Greer*

It's rare for reviews to mention the backroom boys of computer games, but in recent months one name has been cropping up with some regularity – that of Terry Greer, an Exeter-based computer graphics artist.

So far he has worked mainly for Interceptor Micros on their adventures series – including *Heroes of Karn* and *Forest at World's End*

These two programs established Terry Greer as one of the most important graphics talents currently working in the entertainment software field When the programs first appeared the quality of the illustrations – particularly important for an adventure – took most people by surprise Nothing of their level of detail had been seen before on either the Spectrum or Amstrad Terry never received any formal art training but has been drawing for much of his 29 years and has produced cartoons, posters and both cassette and record covers before turning to computer art

It is obviously essential that the graphics displays are developed in conjunction with the game they are to illustrate, both being created at the same time Thus involves close co-operation with the game designer, usually Dave Banner the author/programmer for most of the games Terry's worked on.

"Dave provides me with all details of the game plot – how it should develop, what happens if, etc – and generally tells me the complete story, a more complete picture in fact than if I just played through the game

"He gives me a map of 60 or more game locations and I then choose between 10 and 15 to illustrate, with special instructions of any specific details he requires I aim to concentrate on just doing a few illustrations in great detail to give some atmosphere to the adventure

"Getting a strong feel of the environment is important to grab the player's interest. I don't think illustrations can add much to the plot. Their role, instead, is to help build an image up of the game environment in the mind of the player And you don't need many illustrations to do that – it's quality rather than number that counts "

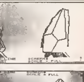
Pencil and paper play a very small part in the development of the pictures "I find paperwork incompatible with graphics simply because I have to work within each computer's limitations – the Spectrum's attribute limit of only two colours in any eight by eight pixel square, for example It's a lot easier to work on the actual machine than on paper

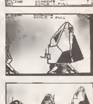
"So I prefer to do any rough work in my head and on the Spectrum, whichever machine it's for, and then start to polish it from the rough.

As for the ideas "You've just got to come up with them. You need a feeling for what you're doing and the rest is down to patience and trial and error. There are no short cuts to good graphics – people may see them on screen and think they only take 30 minutes or so because they load quickly but nothing could be further from the truth."

The Amstrad and Spectrum graphics require completely different approaches On the Spectrum the pictures are actually drawn using a Grafpad, each one taking 10 hours or more to do, and the code is then compressed to save space On the Amstrad Terry, with the help from Dave Banner, is developing his own graphics language rather than using a straight screen compression routine "It suits my style – with detail, texture, shade, etc – and means I can get more pictures into the available space while making use of the Amstrad's colour switching and window facilities

"I particularly like the facility for drawing off-screen and changing the graphics window, so you can produce the impression that the picture is overflowing out of the screen, overlapping the border."







The development of a picture using the Grafpad – Terry works close-up to add detail to a space ship, one of three in the final picture.

Compared to the Spectrum the system is totally different and takes longer – the graphics for *Heroes of Khan* took about four weeks overall. "I draw all the elements – plants, rocks, etc – as individual units and then add them to the background by first using a matt image to wipe out the detail then printing over this, building up the picture from the back to the foreground.

"It's a bit like cinema animation, using a number of overlays to develop a picture, and it's proved very versatile, albeit time consuming "

Once Terry's happy with his pictures he sends them to Dave who incorporates them into the game Both have Spectrum modems so the graphics go along the phone lines from Exeter to Basingstoke – it's reasonably cheap, it ensures the material arrives in a fit state and means it can be tested out within minutes of being sent

With Amstrad graphics Terry simply converts them to the Spectrum format to send and Dave then reconverts them for the Amstrad

On the Commodore Terry works to the same format as on the Spectrum, drawing the pictures on the Koala Pad,

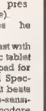


Street Life

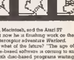
saving them to disc and sending them off to be added to the game. He has done several screen loading pictures and recently finished his first set of graphics for the Commodore version of *The Jewels of Babylon* – completing his hat-trick of versions of *Jewels* for three machines – duplicating the Amstrad and Spectrum pictures and adding a few more into the extra memory available.

He has tried a variety of hardware to input his graphics including joysticks, trackballs, and graphics tablets (electronic and pressure-sensitive). Which does he prefer?

"I get on best with the electronic tablet (I use a Grafpad for Amstrad and Spectrum work). It beats the pressure-sensitive Commodore Koala Pad, chiefly because I find it much more accurate."









The Broch – Terry and Dave researched ancient British fortifications to make this as accurate a representation as possible.

Of all the machines he uses he prefers the Amstrad for graphics because of its memory capacity and some useful graphics modes. But he's always ready to try any new system and is particularly interested in the potential of any of the new 68000 chip range – the QL, Macintosh, and the Atari ST.

Right now he is finishing work on the next Interceptor adventure *Warlord*.

And what of the future? "The age of cassette-based software is coming to an end, with disc-based programs waiting to take over. Disc software offers tremendous possibilities for graphics with so much more memory to play with."

Terry stresses that graphics are not put in at the expense of the adventure, but to complement it. "I like to feel I'm playing a creative role in adding the atmosphere to the game."

Judging by the reviews to date he's achieved that very nicely so far.

The Popular Arcade Addict's Guide

The [illegible] *[illegible] Computing Weekly* [illegible] arcade games. As part of that [illegible] want to compile the big[illegible] tips, tricks [illegible] pokes, get [illegible] level cheats [illegible] sprites, secret pro[illegible] bugs etc [illegible] absolutely any arcade game.

If you know [illegible] about any arcade game that might be useful or interesting [illegible] other arcade addicts we want to know. Keep your information as brief as possible and fill in the form below.

ACCURACY

Please double check any Pokes/lines of Basic included in your tip. We won't have time to double check everything and a tip that doesn't work is worse than useless. Also note down if your Poke/whatever only works on some versions of the game.

REWARD

Anybody who sends in a tip (that works), even if we already have it, will be entitled to buy any of the Sunshine books listed below for a mere £2.00, saving pounds on the cover price. Just fill in your tip(s), indicate the books you want, enclosing a cheque for the appropriate total made payable to Sunshine Books. Send the lot to *Popular Computing Weekly*, Arcade Tips, 12-13 Little Newport Street, London WC2H 7PP.

Choose any book on this list for £2.00:

Commodore 64 Graphic Art on the Commodore 64, Advanced Programming Techniques on the Commodore 64, Machine Code Games Routines for the Commodore 64, Writing Strategy Games on your Commodore 64

C16 The Working Commodore 16

Sinclair The Working Spectrum, Spectrum Machine Code Applications, Artificial Intelligence on the Spectrum

Sinclair QL Artificial Intelligence on the Sinclair QL, The Working Sinclair QL

Atari Writing Strategy Games on your Atari Computer

BBC and Electron Graphic Art for the BBC Computer, Making Music on the BBC Computer, The Working Electron

Dragon The Working Dragon, Advanced Sound and Graphics for the Dragon.

Machine: ....

Game Title: ....

My Tip: ....

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Book: ....

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Name: ....

Address: ....

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Readers' Survey

***Popular Computing Weekly* hae naver attempted a reader survey before, but after more than three years of the magazine, we felt it waa high time we asked you what you feel *Popular* should be like**

To help *Popular* become more the magazine you want we've set out the questionnaire below We've tried to make it as short as possible, so please fill it in and send it off to *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Micro(s) owned (if more than one please list in order of purchase)

How often do you buy *Popular Computing Weekly*?
Every week ☐ Most weeks ☐
Once a month ☐ Very occasionally ☐

Do you subscribe to *Popular*?
Yes ☐ No ☐

Which other magazines do you regularly buy?
Your Computer ☐ *Personal Computer World* ☐ *Computer and Video Games* ☐ *Home Computing Weekly* ☐ *Commodore User* ☐ *Commodore Horizons* ☐ *Sinclair User* ☐ *Amstrad User* ☐ *Acorn User* ☐ *The Micro User* ☐ *Crash* ☐ *Zzap 64* ☐
Others ______

List the three most important features you buy *Popular Computing Weekly* for (ie, New Releases Letters, etc).

1) ______

2) ______

3) ______

How much money have you spent in the last three months on:

Software? £ Hardware? £

Which peripherals do you own?
Printer ☐ Joystick ☐ Disc drive ☐ Microdrive ☐ Modem ☐ Speech synth ☐ Monitor ☐ Printer/plotter ☐

Others (please specify) ______

Which additional peripherals are you thinking of buying in the next 12 months? (Please specify)

What do you mainly use your micro for? (tick more than one box if appropriate)
Games ☐ Wordprocessing ☐ learning programming ☐ Home business ☐ Communications/networks ☐ Music ☐ Graphics ☐
Others (please specify) ______

Are you VERY interested, FAIRLY interested or NOT interested in each of the following

	VERY	FAIRLY	NOT
Arcade games	☐	☐	☐
Adventure games	☐	☐	☐
Wordprocessing	☐	☐	☐
Home business	☐	☐	☐
Graphics	☐	☐	☐
Computer Music	☐	☐	☐
Networking	☐	☐	☐
Basic programming	☐	☐	☐
Machine-code programming	☐	☐	☐
New machines	☐	☐	☐
New peripherals	☐	☐	☐
New software	☐	☐	☐

Do you type in the Star Game listing from *Popular* (when it is for your micro)?
Often ☐ Sometimes ☐ Never ☐

Do you type in (or use elsewhere part of) the machine-page listing for your micro?
Each week ☐ Often ☐ Sometimes ☐
Never ☐

Do you key in programs from the *Open Forum* section of the magazine?
Often ☐ Sometimes ☐ Never ☐

How do you feel about the balance of the features Do you think there should be more or less space allocated to each feature, or is the coverage about right?

	MORE	ABOUT RIGHT	LESS
News	☐	☐	☐
Letters	☐	☐	☐
Competitions	☐	☐	☐
New software reviews	☐	☐	☐
New hardware reviews	☐	☐	☐
Peripheral surveys	☐	☐	☐
Games software reviews	☐	☐	☐
Language software reviews	☐	☐	☐
Utility software reviews	☐	☐	☐
Book reviews	☐	☐	☐
Interviews	☐	☐	☐
Games listings	☐	☐	☐
Programming tips listings	☐	☐	☐
Home business listings	☐	☐	☐
Utility listings	☐	☐	☐
Machine-code listings	☐	☐	☐
Computer music	☐	☐	☐
Modems and networking	☐	☐	☐
Adventure column	☐	☐	☐
Arcade column	☐	☐	☐
Peek & Poke	☐	☐	☐
New Releases	☐	☐	☐
Puzzles	☐	☐	☐
Ziggurat	☐	☐	☐

Do you follow the Top Ten charts?
Yes ☐ No ☐

Do you plan to change your micro in the next year?
Yes ☐ No ☐
If so, what to? ______

What additional feature would you most like to see in *Popular*?

Your age ______

Your occupation ______

Name ______

Address ______

Investment

Program *QL – Cash Trader* **Price** £69.95 **Micro** QL **Supplier** Sinclair Accounting Software.

If you run the sort of business where the books are kept on several pieces of scrap paper underneath the coffee jar, then *QL – Cash Trader* is for you.

The program is designed for the business that pays cash for goods, rather than credit, and the writers have acknowledged that there are many thousands of businessmen who are not accountants or speedy typists, and that haphazard finances are the norm for the small cash-orientated business.

If you recognise yourself in the first paragraph, then this excellent package will become a welcome friend. You have the choice, of course, to lay out a couple of thousand for an up-market computer, plus several hundred for an accounting package, plus several more hundred for a printer and monitor – or less than a thousand for a QL, monitor and printer and this suite of programs from Sinclair.

Cash Trader is packaged on three cartridges containing the suite of programs, and is supplied with a very well-written 220-page manual.

The usual way for the novice to approach a program like this is to fire up and jump in at the deep end – I'm glad to say that *QL – Cash Trader* won't have this for a moment! You are required to work through at least nine of the 13 examples, each of which illuminates an aspect of entering data, covering all the likely problems that might be met, such as bounced cheques, bank loans for capital investment and so on. After nine examples, the main menu changes top allow access to the rest of the program, thus enabling you to begin on your own data. This hand-holding is apparent right from the start; back-up copies of all the cartridges have to be made before anything else can be done.

The screen is very colourful and makes full use of the QLs pseudo-windows, with lots of shadowing to throw all the various windows into relief. The basic element of the program is 'the document', roughly corresponding to your invoices and transactions. This can contain up to 22 lines, and each cartridge will hold 900 single-line documents (and correspondingly less multi-line documents). Having set up VAT rates and group headings (for example, Sales and Income, Office expenses and so on, and several sub-headings in each main group), data is easily entered.

At the end of each day's trading, simply gather together all your cash sales, tickets, cheques, refund notes and so on, and bang away at your QL – *Cash Trader* will prompt for the correct input. Put the machine under your arm when you go home, where you can up-date such things as bad debts, insurance and HP instalments and other business necessities.

Information regarding the allotted groups is always available, including the amounts of cash currently held in each group. A profit-and-loss sheet is also continually up-dated on-screen.

In fact, with so much information available, the layout sometimes becomes rather messy, with, for example, *Cash Difference* being printed in full while poor old *Free Heading* being truncated for some reason to *Free Head* . . .

Nevertheless, the quality of the program shows through in many little ways, such as the discreet little *Beep* every couple of minutes when you forget to switch off after a session.

While you are entering data, you may also insert brief comments, for your accountant's or Vat-person's enlightenment. And, as you input, a panel keeps you posted on the number of documents and lines are held on the cartridge and the amount of space left – come to within a few percent of filling up the cartridge, and the program ensures that you insert a fresh cartridge. This is all taken care of by the main program cartridge (the first cartridge you will use at each session is the Boot-up program).

The third cartridge contains the powerful *Report* program, without which all this data would be of passing interest. This program allows the user to print out all the data in a form which will be of use to your accountant, your Vat-person – and to yourself. Forthcoming modules will also allow for a 'search and report' facility, so that underlying trends, for example, may be detected from your figures.

I really can't find fault with this package – although the authors admit that they are not qualified accountants. The program seems to cover every possibility and is extremely helpful at every point.

An excellent release, and one which makes the QL, at last, worth looking at.

Tony Bridge

High octane

Program *Wizard's Lair* **Price** £6.99 **Micro** Spectrum 48K **Supplier** Bubble bus Software, 87 High Street, Tonbridge, Kent TN9 1RX.

Bubble Bus obviously have a clone spell down there in Tonbridge because *Wizard's Lair* possesses more than a passing resemblance to *Atic Atac* meets *Sabre Wulf*.

There's the same overhead perspective view, similar slamming doors in either block jungle or linedrawn caves, there's even a feeling of *deja vu* in the mission, to find the four pieces of the Golden Lion before you can escape.

But the game itself is so good that it can't just be rejected as a rip-off. As Pothole Pete you have a full 256 locations to chase around, some of them divided by uncrossable rivers and snakes, looking for energy giving food, door-opening keys, weapons (you can run out) and magic scrolls, as well as the aforementioned fragmented feling. Lifts and shafts connect the seven levels. Naturally you're never alone for long as every room attracts hordes of nasties, most of which are dealt with by hurling axes which rebound rather nicely off walls.

And you're always kept on your toes because the monsters are decidedly high octane.

There's plenty to map and discover and difficulty seems well balanced, so considering the price let's turn a blind eye to its 'ultimate' unoriginality and just praise the magic that it's not another *Jet Set Willy* copy.

John Minson

Lightning

Program *Dropzone* **Price** £9.95 **Micro** Atari **Supplier** US Gold, Unit 10, Parkway Industrial Centre, Heneage St, Birmingham B7 4LY

Games on this much-maligned micro are simply the best, as any of the small band of Atari-owners will know, and Gold is doing a sterling job in bringing the best of American Atari software to our attention.

My copy of *Dropzone* arrived with very little in the way of documentation and instructions. The bland cassette box, however, hid a superb shoot 'em up.

In a nutshell, you control a

Jetman sort of character, who can hover or flit from left to right. A quick stab of the fire button unleashes a pleasingly deadly bolt of well, plasma laser, I guess, or some such futuristic death dealer. All around you are the, er, thingymyjigs, which of course mean instant explosion (the best of its kind, I might add) if you so much as brush past them.

You also have to contend with lightning flashes, as well as whatsitsnames trying to nab your little pink whosits. Oh yes, these are the little spherical objects rolling around on the ground – your main task seems to be to pick them up, one by one, and deposit them in a waiting heli-pad from where they roll into a tube (don't ask me why). Drop them all in this way before even one can be picked up by the snatchers, and you earn a bonus as well as going to the next screen.

As I've said, I haven't the faintest what's going on (please enlighten me, US Gold), but the graphics are superb, with the action taking place against a wonderful backcloth of 3D landscape, and the play is utterly addictive. If you are a lucky Atari owner and want to show someone what all the fuss is about, just buy this and keep it booted up permanently.

Tony Bridge

Joystick or keyboard controls (user defined), music on or off and pause functions are all included – you wouldn't have expected these features in a cheapie a year ago.

The game itself is pretty standard 'platforms and ladders' stuff, not breaking any records in the originality league, but competently done all the same.

Your persona looks very much like the Man in the Iron Mask as you shuffle around the six screens, zapping nasties, jumping gaps and watching out for the very aggressive lasers that guard all ladders.

I think there are probably a few hours of fun in this one.

John Cook

Fantasy

Program *Eldon* **Price** £8.95 **Micro** Commodore 64 **Supplier** Orpheus, The Smithy, Unit 1, Church Farm, Hatley St George, nr Sandy, Beds SG19 3HP

The secret forest of Eldon has shrugged off the cold shroud of winter and the faerie queen is once more the ruler of this magical land. You have explored the leafy pathways of Eldon many times before but now, under the warmth of Spring, there is much work to be done.

Deep in the forest grow the seven flowers of Finvarra. You must find the seven magic potions which are scattered throughout the forest kingdom. Only these have the power to make the flowers bloom.

And so starts your fantasy journey in the fairytale lands of Eldon.

The central character is a faerie complete with wings, magic wand and long, flowing, hair. She can walk, fly even, and be made to hover by pressing the fire button. By exploring the many beautiful screens of the forest, you will come across items which may be useful in your quest.

The rooms of the forest are very well done – lots of pretty flowers all over the place. Nasty creatures and weird objects also float about, making life very dangerous and a suitable fairytale sound track accompanies all the action.

Where the game falls down is the actual gameplay. There isn't much to do apart from flying round exploring.

Tom Hussey

Good value

Program *Mini-Office* **Price** £5.95 **Micro** Commodore 64 **Supplier** Database Software, Freepost, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Talk about value for money. This tape contains four packages: a wordprocessor, database, spreadsheet and graphics program, the average cost of each being just less than £1.50.

The wordprocessor is best described as adequate, but it does have one or two interesting features. A useful facility for students to learn touch-typing is the key which enables typing speed to be displayed at any time. Information relating to the number of words typed and more important, the space still left in the computer is given at the top of the page. Perhaps the most novel feature of this program is its ability to display text in double-sized characters.

The database and spreadsheet packages I found to be most impressive.

In the former, an absolute mass of data can be stored and subsequently retrieved in a variety of forms. This is just the thing for harassed club secretaries who are continually having to up-date their membership records. The powerful search option will allow a list of junior members who haven't paid their subscriptions to be printed in a few seconds.

For those not familiar with the spreadsheet concept, the computer provides a huge worksheet made up of rows and columns. Text, numbers and formulae can be entered in the boxes, and the package provides comprehensive facilities for manipulating the contents of each box. Ideal for home finance.

The graphics package allows data from the spreadsheet program to be displayed as a line chart, bar chart or pie chart.

Unfortunately, I could only persuade the database and spreadsheet to actually produce hard copy although this may have had something to do with the fact that I was using a daisy wheel printer.

This suite of programs is an excellent introduction to the fundamental tools in the electronic office.

Tom Hussey

Awesome

Program *Mr Freeze* **Price** £2.50 **Micro** Amstrad CPC 464 **Supplier** Firebird Software, Wellington House, Upper St Martins Lane, London WC2

Your codename? Mr Freeze. Your task? Unleashing only a trusty flamethrower, avoiding awesome hazards and dangers, for the sake of all mankind, you must defrost a fridge.

Well, *Mission Impossible*, it isn't, but still Firebird have produced another creditable game (this time for the Amstrad) in their Silver Range of budget programs ... that are getting more and more polished all the time.

Halcyon

Program *EVA* **Price** £10.95 **Micro** QL **Supplier** Westway, 24 Preston Road, Lytham St Annes, Lancashire

Remember way back, several aeons ago, the stir *Jet Pac* caused on the Spectrum?

Fab wasn't it? Well now you can re-live those halcyon days, this time on your QL,

Continued over page

with *EVA*

Yes, an arcade game for the QL, written in code lots of smooth scrolling, dodging zapping and so on, and it really is great fun – as much fun as *Jet Pac* ever was. I wonder why

Well anyway, the plot involves controlling an astronaut with a jet-pack who can manoeuvre around a screen (with lots of platforms) while dodging and shooting various nasties in a very enjoyable and entertaining way. To escape from one screen to another (there are about 20 or so) you must collect artefacts that appear and assemble them at an appointed place. You can then use the transporter to the next universe.

Points are obtained for zapping nasties, and assembling thingies.

Easily the best game for the QL to date – and the cheapest – but not a Quantum Leap in game concept by any stretch of the imagination.

John Cook

Commanded

Program *MCT Basic* **Price** £10.95 **Micro** Commodore 64 **Supplier** Micro Component Trading Company, Group House, Fisher's Lane, Norwich NR2 1ET

Anyone who provides us with an ally to help with the unequal struggle against C64 Basic deserves applause.

MCT Basic is, however, worth more than applause. By supplying a whole range of extra commands, this tape enables the Commodore 64 buffs to write considerably more sophisticated and up-to-date programs.

To start with, the conversion of the back-arrow to an *Escape* key provides a whole host of new editing functions ranging from the setting of screen windows to scrolling controls.

Programming aids like automatic line numbering and renumbering turn the production of long listings into a pleasure rather than a chore. (Indeed, *MCT Basic* also renumbers *Gotos* – which is an improvement on the vastly more expensive Simon's Basic.)

Extra structured commands such as *Else*, *Loop*, *Do*, *Until*, *While* all provide means of writing more efficient programs. Their existence also makes conversion from listings in other Basic dialects considerably easier.

A useful range of graphics commands include *Colour*, *Draw*, *Box*, *Circle* and *Paint*, while eight sprite routines take the pain out of writing *Space Invader* programs.

Rounding off it offers a comprehensive range of sound commands, nine new disc commands, and the provision of a machine-code monitor making *MCT Basic* a comprehensive package.

One small complaint: the user manual, although well written, doesn't give enough example programs demonstrating the new commands. To be fair, an extended example is provided on a separate tape called *Screen Painter* – a very useful program in its own right (although this appears to have an 'undefined statement error' in Line 2030). Perhaps the inclusion of a *Hardcopy* command would also have been worthwhile.

I was impressed by *MCT Basic* and it's a valuable addition to the C64 programmer's tool-kit.

Tom Hussey

Starting grid

Program *Revs* **Micro** BBC B **Price** £14.95 (tape) £17.65 (disc) **Supplier** Acornsoft, Betjaman House, 104 Hills Rd, Cambs, CB2 1LQ

Program *Chicane* **Micro** BBC B **Price** £7.95 (tape) **Supplier** Kempston Micro electronics, Singer Way, Woburn Road Industrial Estate, Kempston, Bedford, MK42 7AW

The start of the Grand Prix season produced a massive response from the software industry – two programs for the BBC B in the shape of *Revs* from Acornsoft (BBC B) and *Chicane* from Kempston.

It's a competitive sport after all, so I put them head to head on the starting grid for a comparative road test.

Superficially, the programs are very similar. Both claim to be racing 'simulations' developed in tandem with actual racing teams. Both have 'out-of-the cockpit' views of the race track, with various instruments (rev counter, gears etc) on display. If anything, *Chicane* seems to offer a little more, as you are given the choice of six circuits to race on.

However, the fact is that one of these programs considerably outclasses the other, in terms of realism, challenge and above all that elusive feel of the motor racing world. That program is *Revs*.

Despite the weighty price tag of almost £15 (or maybe, because of), *Revs* really does deliver the goods as a true racing simulation. You can tell because for the first few hours you find yourself skidding and crashing all over the place. It takes quite some time to master the controls, then the car, and then the track.

How can Kempston claim 'simulation' status when you can go round a track with only occasionally having to use the steering controls? When you can go round the full Silverstone circuit in under 50 seconds in what is supposedly a Formula Ford 2000 car? When you can motor round in third gear and yet keep up with the rest of the field? Simulation this is not.

On *Revs*, David Hunt (racing adviser to Acornsoft) can just about achieve his best lap time in real life, around one minute 24 seconds in a Formula Three car. That is more like a simulation.

Revs oozes class, style and above all, realism. You can choose Practice or Race options, with three levels of difficulty. You can adjust the setting of the aerofoils on your car. When you do race, the opposition are smart and fast, not the usual moving brick walls. And the contours of the Silverstone track are created in loving detail.

Chicane, although offering a greater number of tracks even at half the price is really half the fun.

John Cook

Revs **Chicane**

Dodos

Program *Don't Buy This* **Price** £2.50 **Micro** Spectrum **Supplier** Firebird Software, Wellington House, Upper St Martins Lane, London WC2

Well, this is finally it. They've been threatening it for ages and now it's arrived – a compilation of the worst dodos that ever came the way of Firebird. "Don't Buy This", they say - I say "Inflict It On Your Worst Enemy At the Earliest Opportunity". There are five programs on this computing Rogues' Gallery. First of all take *Race Ace*. Somebody please, please take *Race Ace Revs*, it isn't – appalling it is.

I quite enjoyed *Fido*, however, this involves moving a puppy along the bottom of the screen and bashing moles with your tail. The same canine sprite makes a reappearance in *Fido II* – this time only you can wop the moles with your tail, you can yos (as they say in the vernacular) at other things, with a great Spit the Dog impression.

Despite promises of anonymity for the authors, I'm afraid some names have been left in – where are you now, R Harrington??? Recommended for masochists only.

John Cook

Hardware



Colour display

Hardware *MA20 RGB Interface* **Micro** Spectrum **Price** £29.95 (MCO1 Monitor, £229.95) **Supplier** Thorn EMI Ferguson, Cambridge House, Great Cambridge Road, Enfield, Middlesex.

There comes a time in every Spectrum user's life – usually by the time you get to your third set of bifocals – when you contemplate moving from your nasty black and white TV to a nice new colour monitor.

If you are nearing this previously traumatic time, then you could do worse than consider opting for a Ferguson MA20 RGB Interface, specifically tailored for their Monitor/TV (reviewed *Popular Computing Weekly* Vol 3 No 47).

These two items are certainly to be classified as 'consumer' products, as that there is no fiddling around making connections inside your micro (especially useful if the warranty hasn't expired) or fiddling around with screwdrivers – it's out of the box, connect them up and a great crisp colour display.

The interface itself fits on to the expansion port at the back of the Spectrum, drawing its power from there. It does fit piggy-back style on Interface One – albeit a little untidily.

A duplicate port is found on the rear of the unit – it might be worth checking, though, that your favourite add-on is compatible.

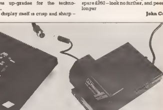
Two more things to plug in, a lead to the Spectrum Mic socket (this gets you glorious sound out of the monitor), and the Din RGB output to the monitor, and then you're in business.

This must count as the ultimate in painless up-grades for the technofearful.

The display itself is crisp and sharp – gone are the days of the old dot crawl. Utilities look so much nicer when they crash, and games too – with the added extra of half-way decent sound. For the text-only stuff, you can switch over to a green-screen display, to make the likelihood of eyestrain even more remote.

For any myopic Spectrum owner considering an easy visual up-grade – and a spare £260 – look no further, and peer no longer.

John Cook



Otto

Death and destruction await you in the Gonks' Lair – can you survive this epic on the CBM 64 *by Andrew Jones?*

The idea behind the game is to guide your multi-coloured creature, Otto, around the lair of the Evil Gonks to reach the teleporter (at the bottom of the screen) which takes you to the far right – from which you must reach the magic crystal. You must do this three times to win.

The listing is in two parts. Part One is the data for the special graphics and the redefined character set and Part Two is the game itself.

They must be typed in and save separately, Part One being loaded and run before Part Two – the main program. The controls are as follows: 3 – up, X – down, @ - left, ↑ - Right. When playing the game try to move as swiftly as possible, as stalling will only cause death! After the title screen, press F1 to start. Good luck!



```
9 PRINT"♥" POKE53280,0 POKE53281,0
10 PRINT"■■■■■■■       ■ PLEASE WAIT  ■" PRINT
20 PRINT"■■■■■■■  DO NOT STOP THE TAPE  ■"
40 FORJ=0TO0
50 POKE56333,127 POKE1,51
56 X=PEEK(53248+J)
95 POKE1,55 POKE53265,128
96 POKE(14336+J),X
97 NEXTJ
98 FORN=1TO00
99 FORN=0TO7
100 READX
110 POKE(14336+N+8*A),X
120 NEXTN NEXTA
130 FORA=40TO57
140 FORN=0TO7
150 READX
160 POKE(14336+N+8*A),X
170 NEXTN NEXTA
180 FORA=35TO47
190 FORN=0TO7
191 READX
192 POKE(15296+N+8*A),X
193 NEXTN NEXTA
200 FORA=64TO74
210 FORN=0TO7
220 READX
230 POKE(14336+N+8*A),X
240 NEXTN NEXTA
250 FORA=27TO32
260 FORN=0TO7
270 READX
280 POKE(14336+N+8*A),X
290 NEXTN NEXTA
300 FORA=80TO61
310 FORN=0TO7
320 READX
330 POKE(14336+N+8*A),X
340 NEXTN NEXTA
400 FORA=75TO82
410 FORN=0TO7
420 NEXTN
430 POKE(14336+N+8*A),X
440 NEXTN:NEXTA
500 FORA=83TO89
510 FORN=0TO7
520 READX
530 POKE(14336+N+8*A),X
540 NEXTN NEXTA
600 POKE53272,31
40895 REM ■■■ DATA FOR LETTERS ■■■
```

```
50000 DATA124,31,96,115,103,127,115,0,62,119,96,126,99,119,126,0
50010 DATA30,63,112,96,115,127,62,0,124,110,30,31,30,126,124,0
50020 DATA63,119,97,124,97,115,62,0,62,115,96,124,120,96,112,0
50030 DATA31,56,112,103,99,127,91,0,115,99,103,127,115,99,103,0
50040 DATA62,28,12,28,28,56,124,0,63,127,6,3,107,126,60,0
50050 DATA115,99,110,124,110,102,115,0,56,112,96,96,115,127,62,0
50060 DATA118,127,109,101,97,99,119,0,100,126,115,99,98,115,103,0
50070 DATA60,54,99,99,119,127,62,0,126,115,99,54,99,54,124,0
50080 DATA60,119,99,119,124,62,0,94,127,119,100,124,110,103,0
50090 DATA63,115,102,112,28,70,127,0,17,28,63,106,112,115,62,0
50100 DATA124,99,99,33,119,127,62,0,119,54,99,99,99,54,28,0
50110 DATA119,99,47,103,119,127,118,0,115,103,114,56,28,56,119,0
50120 DATA119,99,99,54,28,28,62,0,127,107,78,60,57,115,127,0
50125 REM ■■ DATA FOR NUMBERS ■■
50130 DATA28,54,99,99,119,127,62,0,12,28,60,12,28,63,127,0
50140 DATA60,62,103,67,14,60,127,0,60,102,102,15,0,102,60,0
50150 DATA102,54,54,127,6,7,15,0,127,124,96,126,3,99,127,0
50160 DATA62,124,112,126,115,119,62,0,127,99,71,6,14,28,28,0
50170 DATA62,115,102,62,121,115,62,0,63,117,38,110,62,6,31,0
50180 REM ■■ DATA FOR REST OF GRAPHICS
50190 DATA0,0,127,127,127,65,65,0,65,65,255,255,255,0,0
50200 DATA0,0,255,255,255,65,65,4,29,29,31,31,23,23,3,3
50210 DATA64,64,255,255,255,65,65,93,93,123,255,243,240,64,64
50220 DATA60,60,255,252,252,252,65,65,29,29,29,29,29,25,25,29
50230 DATA191,174,188,69,149,168,234,251
50240 DATA29,29,29,29,29,21,21,5,5,23,23,31,31,29,29
50250 DATA65,65,255,255,255,65,65,64,64,64,240,240,255,125,33,33
50260 DATA0,0,0,0,28,0,0,127,254,6,3,7,207,255,170,0,28,34,99,119,127,62,85
50270 DATA0,6,126,115,63,99,115,173,0,28,63,99,119,124,127,62,0,127,112,56,30
50280 DATA127,127,127,30,30,31,115,103,255,255,227
50290 DATA3,7,15,30,60,56,0,112,222,239,85,253,253,255,85,223
50300 DATA0,0,1,15,61,247,247,247,0,0,64,240,252,255,255,255,247,247,30,61,15
50400 DATA0,0
50420 DATA0,0,255,255,252,250,240,240,192,128,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
50500 DATA255,255,255,250,107,107,90,94,34,34,54,38,127,107,255,255,255
50600 DATA0,15,61,245,255,0,0,85,000,223,127,255,255,26,20,0,150,240,250,255
50610 DATA255,0,0,0,0,220,248,61,15,0,0,20,20,255,255,127,223,250,88
50620 DATA0,255,255,252,240,192,0
50630 DATA0,1,2,20,30,64,40
50640 DATA64,64,32,20,2,1,2,0
50650 DATA2,4,8,16,32,65,68,00,00,144,16,16,200,16,16,16
50670 DATA00,65,133,161,181,153,90,59,200,171,154,86,181,169,180,200
50680 DATA231,234,166,149,89,166,174,191,200,186,169,181,86,154,171,200
53000 REM ■■■■■■■■■■■■■■■■■■■■
53001 REM ■■ OTTO  PART 1 ■■■■■
53002 REM ■■  WRITTEN  BY ■■■■■■
53003 REM ■■■ ANDREW JONES ■■■■■■
53004 REM ■■■■■■■■■■■■■■■■■■■■■
53005 REM ■■ COPYRIGHT (C) 1984 ■
53006 REM ■■  EXATICA MICRO'S ■■■
53007 REM ■■■■■■■■■■■■■■■■■■■■■
```

```
1 REM ■■■■■  ! ! OTTO !!! WRITTEN BY AA
2 REM ■■■■■  INTERRUPT ■■■■■■■■■■■■■■■■
3 REM ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
6 POKE650,128 POKE53248+27,24
7 REM ■■■■■ TITLE SCREEN ■■■■■
8 PRINT"♥" POKE53280,0 POKE53281,0 PRINTCHR$(8) PRINT"♥":POKE53272,31
9 POKE53272,31 POKE53283,2
10 PRINT PRINT"■          -,%/ ■■■■) ■■■■) -,%/"
20 PRINT"           ■ ■  ■   ■ ■ L/"
30 PRINT"           ■ ■  ■   ■ ■ ■"
40 PRINT"           & S(        &*S("
60 PRINT PRINT PRINT PRINT"■■■■■■■■ DESIGNED AND WRITTEN I"
61 PRINT PRINT"■■■■■■■■■■■■■■■■■■■Y" PRINT PRINT
70 PRINT"■■■■■■■■■■■■■■■■■■■ | ---"
75 PRINT PRINT PRINT PRINT PRINT PRINT
76 PRINT"■        EXATICA SOFTWARE 1985  /"PRINT
100 V=53248
110 POKEV+21 15 POKEV+28 15 POKEV+27 15
120 POKE2042,13
130 FORN=0TO62 READA POKE832+N,A NEXT
140 POKEV+41 5 POKEV+39 1 POKEV+38,6
150 POKE2041 14 POKEV+40 12
160 FORN=0TO62 READA POKE896+N,A NEXT
170 POKE2040 15 POKEV+39 4
180 FORN=0TO62 READA POKE960+N,A NEXT
190 POKEV+5,185
200 FORX=0TO164STEP1 POKEV+4,X NEXT
300 POKE54296,15 POKE54277,190 POKE54278,000 POKE54276,17
310 FORB=0TO200STEP1
330 POKE54276,128
335 POKE54273,0 POKE54272,3
340 POKE54276,17
350 NEXT
360 FORB=200TO0STEP-1
365 POKE54276,128
368 POKE54273,0 POKE54272,3
370 POKE54276,17
375 NEXT
380 GOSUB3000
390 POKE53280,3 POKE53281,6 POKE53282,2
391 PRINT"■■■■■■■■■■■■■■■■  PRESS F1 !"
392 B=55296 C=INT(7*RND(1))+1
400 POKEB+3,C
401 POKEB+5 INT(7*RND(1))+1
402 POKEB+7 INT(7*RND(1))+1
403 B=55874 GETA$ IFA$=""THEN403
404 POKEB+1 INT(7*RND(1))+1
405 POKEB+2 INT(7*RND(1))+1
406 POKEB+3 INT(7*RND(1))+1
407 POKEB+4 INT(7*RND(1))+1
408 POKEB+5 INT(7*RND(1))+1
410 GETA$ IFA$=""THEN403
420 GOTO405
421 POKEV+21,0 PRINT"♥" CLR LI=3:VE=0:HO=0:LE=1
425 REM ■■■■■■■ DRAW SCREEN ■■■■■■■
430 PRINT"■ SCORE 000                LIVES 3■" PRINTTAB(15) "■LEVEL 0■"
431 PRINT"■+++++++++++++++++++++++++++++++++++++"
432 PRINT"<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<■" ■■■ ■■KC"
433 PRINT"                              ■" ■■' ■"
434 PRINT"■---                          ■'"  "
435 PRINT"■****                         '    "
436 PRINT"■                      --     ■"   "
437 PRINT"■     ``              `      `    ``"
438 PRINT"■                  ----   -----■"  ``"
439 PRINT"■     ``   ```   ``````  ``````    "
440 PRINT"■                              `   "
441 PRINT"■    ```````````````````````   `   "
442 PRINT"■          <<<<<<             ■''   "
443 PRINT"■     ``              ``      ■"   "
444 PRINT"■                       ---   ■"   "
445 PRINT"■******  ```    ```````````   `  ```"
446 PRINT"■  /L\  SK<<    <<<<<<<<<     ■"  ■/L\■"
447 PRINT"■``                            `   "
448 PRINT"■                              `   "
449 PRINT"■``                            `   "
450 PRINT"■ /7      ■------------------■"  ■/■"
451 PRINT"■+++++++++++++++++++++++++++++++++++"
```

```
500 IFB=63THEN0999
505 POKEV+2,82 POKEV+9,100
507 POKEV+4,30 POKEV+5 33 HO=30:VE=33 X=30:POKEV+21,15 POKEV,102:POKEV+1,50
510 POKE54296 15 POKE54277 130 POKE54278 240 POKE54276 33
520 FORA=0TO3
530 FORY=170TO8STEP1 POKEV+7,Y 33 POKE54272 X+5:POKE54273,X+1 NEXT
540 X=X-9 NEXT
550 FORX=0TO150 POKE54273,1 NEXT
560 GOSUB3000
561 REM ■■ MOVE HENRY/HENRO   &                  STE THE VORBIT.
570 POKEV+31,0
580 FORX=47TO150STEP3 POKEV+2,X
581 GETA$ IFA$<>""THENGOSUB1000
590 GOSUB2000
600 NEXT
605 FORX=162TO70STEP-2 POKEV,X
610 GETA$ IFA$<>""THENGOSUB1000
611 GOSUB3000
630 NEXT
710 FORY=150TO40STEP-3 POKEV+2,X
711 GETA$ IFA$<>""THENGOSUB1000
712 GOSUB2000
730 NEXT
810 FORX=75TO150STEP3 POKEV,X
811 GETA$ IFA$<>""THENGOSUB1000
820 GOSUB2000
830 NEXT
890 GOTO500
900 REM ■■■ CHECK IF KEYS BEEN PRESSED
1000 REM
1005 IFA$="Y"THENHO=HO+3 POKEV+4,HO
1010 IFA$="Q"THENHO=HO-3 POKEV+4,HO
1020 IFA$="3"THENVE=VE-3 POKEV+5,VE
1030 IFA$="X"THENVE=VE+3 POKEV+5,VE
1040 IFPEEK(V+31)>1THEN7000
1050 RETURN
2000 IFPEEK(V+30)=5THEN7000
2001 IFHO=40THEN8000
2010 RETURN
3000 IFPEEK(V+30)=5THEN7000
3010 IFHO=40THEN8000
3020 RETURN
7000 REM ■■LIVE LOST■■
7010 LI=LI-1
7030 PRINT"■" PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■" LI
7040 POKE54296 15 POKE54277 1 POKE54278,247 POKE54276 17
7050 FORT=0TO5
7060 FORY=17TO0STEP-1 POKE54273 Y NEXTY
7070 NEXT
7080 FORT=0TO5
7090 FORY=0TO15STEP-1:POKE54273 Y NEXT
7100 NEXTT
7110 FORT=0TO5
7120 FORY=25TO0STEP-1:POKE54273,Y NEXTY
7130 NEXTT
7140 IFLI=0THEN20000
7900 POKEV+21,0 GOTO3000
8000 REM ■■■REACHED TELEPORTER■■■
8010 POKE56050 1 POKE56090 1 POKE56130 1 POKEV+21,4
8020 POKE56402 1 POKE56132 1 POKE56172 1 L=0 D=0 I=0
8030 FORY=0TO70
8040 IFX=45THENPOKEV+30 L
8050 POKE1787,82 POKE1988,81 POKE1868 81
8055 POKE1907,82 POKE1908,61 POKE1827,81
8060 IFX=11THENPOKEV+41 0
8070 POKE1782,81 POKE1868 64
8080 POKE1827,82 POKE1908,82
8090 POKE1867,81 POKE1868 82
8100 IFX=25THENPOKEV+38 1
8110 NEXTX IFO=5THEN8150
8120 POKEV+10,4
8125 POKEV+4 46 POKEV+5 243
8140 L=1 S=5 I=6 GOTO8000
8150 POKE54296,0 POKE54080,0 POKE56139 0
8160 POKE1787 32 POKE1947 32 POKE1827,32:POKE1868 32 POKE1908 32 POKE1948 32
8170 POKE1908,32 POKE1828 32
8190 POKEV+4 46 POKEV+5 203 H=40 HO=46 VE=203 POKEV+31,0 POKEV+21 4
```

Star Game

```
9000 IFVE=0THEN10000
9010 GETN$ IFN$<>""THEN9000:GOTO1300
9060 GOTO9000
10000 REM **** REACHED BALLOON
10010 RESTORE FORY=0TO1:READ X:NEXT
10020 V=54296 W=54276 A=54277 HF=54273 LF=54272 D=54278 PH=54275 PL=54274
10030 POKEV,15 POKEW,33 POKEA,190 POKEPH,15 POKEPL,15
10040 READH READL READD
10050 IFH=-1THEN20701300
10060 POKEHF,H POKELF,L
10070 FORX=0TOD*36 POKEW,106 NEXT
10080 POKEHF,0:POKELF,0 POKEW,0
10090 GOTO10030
15000 GOSUB33000
15004 IFLE=3THEN13030
15010 PRINT"" PRINT"[illegible] RIKI NOW ON 11 NORTH"
15020 C=0
15030 FORT=0TO150
15040 PRINT"[illegible]"
15041 PRINT"[illegible]"
15042 PRINT"[illegible]"
15043 PRINT"[illegible]"
15050 NEXT
15060 PRINT"" PRINT"[illegible]"
15070 FORR=0TO120 SC=SC+1 PRINT"" PRINT"[illegible]" SC NEXTR
15071 IFLE=3THEN40000
15073 LE=LE+1 PRINTTAB(15) "[illegible]" LE
15080 GOTO POKEV+15 0 POKEV+21 0 GOTO9000
20000 REM ***** GAME OVER *****
20001 PRINT"" CLR V=53248 POKEV+21 238
20010 POKEV+15 0 POKEV+4 168 POKEV+5,180
20020 POKEV 0 POKEV+1 0
20030 POKEV+2 160 POKEV+3 0
20040 PRINT PRINT"      G A M E     O V E R"
20050 PRINT"[illegible]"
20053 PRINT"[illegible]"
20060 PRINT"[illegible]"
20070 PRINT"[illegible]"
20080 FORH=0TO100STEP5
20090 POKEV+9,H
20100 NEXTH
20110 POKEV+21 2
21000 POKE54296,15 POKE54277 190 POKE54278 200 POKE54274 30 L=1
21010 FORJ=0TO10
21020 FORX=0TOL POKE54273 X NEXTX
21030 L=L+3
21040 NEXT
21050 FORJ=0TO10
21060 FORX=LTO0STEP-1 POKE54273,X NEXTX
21070 L=L-3
21080 NEXT
30000 POKEV+4 0:POKEV+2 0 POKEV+2 0:POKEV+1 0 POKEV+3 0 POKEV,0
30010 RESTORE CLR RUN
32050 GOSUB33000
32000 REM ***** DATA FOR SPRITES *****
33000 POKE54296,0 POKE54277 0 POKE54276 0 POKE54278 0 POKE54273 0 POKE54272,0
33010 RETURN
40000 PRINT"" CLR RESTORE V=53248
40010 PRINT:PRINT"            -.X/ (@@@) @@@@) -.X/"
40020 PRINT"          @ @ @  @ @ @"
40030 PRINT"          @ @ @  @ @ @"
40040 PRINT"          @ @(   , @ @(
40050 PRINT"[illegible] CONGRATULATIONS YOU ARE A TRUE"
40060 PRINT"[illegible]GAMES PLAYER"
40070 PRINT"[illegible] ! ! ! ! ! ! ! !"
40072 POKEV+21 255 POKEV 0 POKEV+4 0 POKEV+2 0
40100 POKEV+16 0 POKEV+/0 255 POKEV+27,255 POKEV+1 200 POKEV+3,200 POKEV+5,200
40110 FORR=0TO180 POKEV,R NEXTR
40111 FORR=0TO161 POKEV+4 R NEXTR
40112 FORR=0TO134 POKEV+2 R NEXTR
40130 POKE54296,15 POKE54277 190 POKE54273,200:POKE54276,17
40131 FORH=0TO30
40132 POKE54276 33
40133 POKE54276,H POKE54273 H+10
40134 POKE54276 17
40135 NEXT
40141 FORH=10TO30
40142 POKE54276,33
40143 POKE54273,H+0 POKE54272,H+0
40144 POKE54276,17
40145 NEXT
40151 FORH=20TO40
40152 POKE54276,33
40153 POKE54275,H+4 POKE54272,H+0
40154 POKE54276 17
40155 NEXT
40161 FORH=30TO45
40162 POKE54276 33
40163 POKE54273 H+6 POKE54272 H+4
40164 POKE54276,17
40165 NEXT
40171 FORH=40TO80
40172 POKE54276,33
40173 POKE54273,H+0 POKE54277 H+0
40174 POKE54276,17
40175 NEXT
40181 FORH=30TO80
40182 POKE54276 33
40183 POKE54273,H+10:POKE54273,H
40184 POKE54276 17
40185 NEXT
40186 GOSUB33000
40240 PRINT"            [illegible]"
40250 FORH=0TO2000 NEXTH
40260 POKEV+4 0 POKEV+2 0 POKEV 0 CLR RESTORE RUN
50000 DATA0 42 0 2 170 106,10 170,168 10 170,170 41,106 90 37 09,00 37,25,70
50010 DATA37 09 06 41,106 90 42,170 170 42 170,170,10,234,232,10,190,160
50030 DATA2 170 160 0 09 64 0 208 192 0 243,192 0 243 192 0,130 130 1.64 80
50030 DATA5 64 84
50100 DATA42 170 168 170 170:170,160,170,50,140 190,06 149,106 06 140 106,22
50110 DATA165 170 30 170 170,170 170,170 170,175 107 136 174 230 230 170,170
50120 DATA170 42 170 168 1 00,64 0 106,0,3 190 192,3 135,192,3 170,192,0,65 0
50130 DATA2 130 130 42 130 160
50200 DATA0 42 0 2 170 160 10 170 168 10,170,160,42 170 170 41,106,96 37 09 06
50210 DATA36 00 72 30 00 36 41 106 96 42,170 170,42 170 170,42 170,170
50220 DATA42 191 170 42 200 230 45 17 30 43,193 200 42 191 170,42 170 170
50230 DATA0 160 160 32 32,32
55000 REM **** DATA FOR TUNE ****
55010 DATA16 147 1000 12 216 675 11 114,1000 14 107 230 12 216,200,9,147 1000
55020 DATA12,216 1000 11 114 1000 14 107 375 12 216 125 9,147 230 19,216 230
55030 DATA11 114 500 14 107 150 0 147,275 12 216 375,11 114 200 14 107 175
55040 DATA12,216 125 10 202 125 16 47 125 10 200 125 14,107 125
55090 DATA10 202 125 16 47 125 10 202 125,14 107 125 7,53 10000 -1 -1 -1
```






Agree to differ

Compare your listings with this program for the QL with monitor by ***John Miller***

There are often occasions when there are several versions of a program lurking around on Microdrive cassettes, and it can be difficult to remember what the differances are. This utility program is intended to compare two program listings, and highlight the differences.

It has been deliberately kept fairly simple. For example, it only shows and compares the first 40 or so characters of code in a line, but this is normally sufficient to pick out differences. An option has been included to ignore the Superbasic line numbers, in case the two listings only differ because one has been renumbered.

The utility works by reading the two program listings as files, and storing the first 38 characters of each line in a large array. This makes it easy to move up and down the listings. The dimensions are set to allow each listing to be a maximum of 500 lines. This could be increased if necessary, or the utility modified to handle partial listings, if longer programs were to be handled.

Upon running the program, you will be asked for the two file names to be compared – enter the names as: mdv1-filename, and from there follow the on-screen prompts.

Program Notes

options – sets up the opening screen and invites the user to include line numbers or not.

init – sets up all the different screens used and the large array, proglist$. It also initialises the values start (1) and start (2), which are the subscripts for the array, representing the current points in the array at the top of the two display screens.

startup – asks the user for the names of the two program files. These must be in the form mdvn—programname. Note that there is no error checking included. It then reads the files into the array.

display – moves the relevant part of the array on to the appropriate screen.

compare – prints the 'not equals' sign if two adjacent lines differ. The code between lines 980 and 1050 drops the Superbasic line number off the front before the comparison. A minor improvement could be made here to check that the length of the two lines being compared is the same.

adjust – reads the keyboard input, and adjusts the code on the screen up or down.

downpage – scrolls both screens down.

uppage – scrolls both screens up. Both these procedures contain an 'end' check.

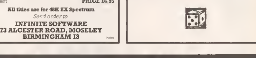
help – prints the instructions. These need adjusting if the utility is being used on a television (ie, if F2 is pressed at start up).

```
100 REMark Program Listing Comparison
110 REMark J. K. Miller
120 :
130 options
140 init
150 startup
160 display 1
170 display 2
180 compare
195 help
200 adjust
210 :
220 DEFine PROCedure options
230 OPEN #9,con_512x200a0x0
240 PAPER #9,5
250 INK #9,2
260 CSIZE #9,3,1
270 CLS #9
280 AT #9,2,6:PRINT #9,"PROGRAM COMPARISON"
290 AT #9,4,7:PRINT #9,"by  J. K. MILLER"
300 CSIZE #9,1,0
310 INK #9,0
320 AT #9,14,4:PRINT #9,"This utility compares two listings of the same
    program"
330 AT #9,15,4:PRINT #9,"and highlights lines which differ. Do you want
    to include"
340 AT #9,16,4:PRINT #9,"line numbers in the comparison? Type 'y' or 'n'
    ";
350 INPUT #9;include_line$
360 IF include_line$<>"y" AND include_line$<>"n" THEN GO TO 350
370 END DEFine
380 :
390 DEFine PROCedure init
400 PAPER #0,0:PAPER #1,0:PAPER #2,0
410 CLS #1:CLS #2:CLS #5
420 OPEN #3,scr_250x196a0x10
430 OPEN #4,scr_250x196a262x10
440 OPEN #5,scr_512x10a0x0
450 OPEN #6,scr_12x206a250x5
460 PAPER #3,7:INK #3,0
470 PAPER #4,7:INK #4,0
480 PAPER #5,4:INK #5,0
490 PAPER #6,0
500 BORDER #3,5,2
510 BORDER #4,5,2
520 CLS #3
530 CLS #4
540 CLS #5
550 CLS #6
560 DIM proglist$(2,500,38)
570 DIM start(2)
580 start(1)=1
590 start(2)=1
600 END DEFine
610 :
620 DEFine PROCedure startup
630 INPUT #0,"First program file  : ";progname1$
640 AT #5,0,12:PRINT #5,progname1$
650 OPEN_IN #7,progname1$
660 INPUT #0,"Second program file  : ";progname2$
670 AT #5,0,55:PRINT #5,progname2$
680 OPEN_IN #8,progname2$
690 FOR i=1 TO 2
700   FOR j=1 TO 500
710     INPUT #6+i,in$
720     proglist$(i,j)=in$(1 TO 38)
730     IF EOF(#6+i) THEN GO TO 750
740   NEXT j
750 NEXT i
760 END DEFine
770 :
780 DEFine PROCedure display (n)
790 LOCal i
800 CLS #2+n
810 FOR i=0 TO 17
820   PRINT #2+n,proglist$(n,start(n)+i)
830 NEXT i
840 END DEFine
850 :
860 DEFine PROCedure compare
870 LOCal i
880 CLS #6
890 PRINT #6," "
900 FOR i=0 TO 17
910   IF include_line$ = "y" THEN
920     IF proglist$(1,start(1)+i)<>proglist$(2,start(2)+i) THEN
930       PRINT #6,"<>"
940     ELSE
950       PRINT #6," "
```

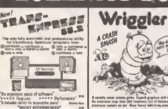
```
960       END IF
970     ELSE
980       code1=" " INSTR proglist$(1,start(1)+i)
990       code2=" " INSTR proglist$(2,start(2)+i)
1000      pl1$=proglist$(1,start(1)+i)(code1+1 TO)
1010      pl2$=proglist$(2,start(2)+i)(code2+1 TO)
1020      IF pl1$<>pl2$ THEN
1030        PRINT #6,"<>"
1040      ELSE
1050        PRINT #6," "
1060      END IF
1070    END IF
1080 NEXT i
1090 END DEFine
1100 :
1110 DEFine PROCedure adjust
1120 REPeat loop
1130   k$=INKEY$
1140   key=CODE(k$)
1150   SELect ON key
1160     =49 :start(1)=start(1)+1:display 1:compare
1170     =50 :start(2)=start(2)+1:display 2:compare
1180     =33 :start(1)=start(1)-1:display 1:compare
1190     =64 :start(2)=start(2)-1:display 2:compare
1200     =216:downpage
1210     =208:uppage
1220     =27 :STOP
1230   END SELect
1240 END REPeat loop
1250 END DEFine
1260 :
1270 DEFine PROCedure downpage
1280 LOCal i
1290 FOR i=1 TO 2
1300   start(i)=start(i)+18
1310   IF start(i)>483 THEN
1320     start(i)=483
1330   END IF
1340   display i
1350 NEXT i
1360 compare
1370 END DEFine
1380 :
1390 DEFine PROCedure uppage
1400 LOCal i
1410 FOR i=1 TO 2
1420   start(i)=start(i)-10
1430   IF start(i)<1 THEN
2440     start(i)=1
1450   END IF
2460   display i
1470 NEXT i
3480 compare
1490 END DEFine
1500 :
1510 DEFine PROCedure help
1520 CLS #0
1530 INK #0,7
1540 AT #0,1,37:PRINT #0,"PRESS A KEY"
1550 INK #0,2
1560 AT #0,2,9:PRINT #0,"To scroll a listing one line, press 1 or 2. Use
    SHIFT to scroll up."
1570 AT #0,3,9:PRINT #0,"To scroll both screens a page, use the up and
      down arrows."
1580 INK #0,7
1590 AT #0,4,26:PRINT #0,"To return to Superbasic, press ESC."
1600 END DEFine
```



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Word games

Word searches can become painless with this useful Spectrum program from ***Bob Purdy***

This program searches for words that are hidden in letter puzzles. It accomplishes this by comparing the first three letters of each word to be found with every three letter combination that occurs in the puzzle itself.

When a match is found it is output to the screen and eventually to a printer. Sometimes, false results can be obtained when the first three letters of a clue are included by coincidence, but these are rare and easily spotted.

If a printer is not available it is advisable to change Lines 420,540, 660, 780, 900, 1020, 1130 and 1240 from *Copy* to *Pause 0*, the results obtained at each orientation can then be written down before the program goes on to the next one and overwrites them.

The program will search word puzzles up to 20 characters square and will look for up to 40 words at one time.

```
10 REM          WORD          FIND          BOB PURDY          1984
20 REM INPUT LETTER GRID &          WORDS FOR SEARCH
30 CLS : PRINT "ENTER NUMBER OF LETTERS ACROSS  THEN NUMBER OF LETTERS DOWN.
MAXIMUM FOR EITHER=20": INPUT AC,DD
40 IF DD>20 OR AC>20 OR DD<2 OR AC<2 THEN  GO TO 30
50 POKE 23658,8
60 PRINT "INPUT EACH ROW SEPARATELY": PAUSE 200: CLS
70 DIM a$(DD,AC)
80 FOR I=1 TO DD
90 INPUT a$(I)
100 PRINT a$(I)
110 NEXT I
120 GO SUB 1270
130 PAUSE 100: CLS
140 FOR I=1 TO DD: PRINT a$(I): NEXT I
150 COPY
160 PRINT #0;"Any key to continue": PAUSE 0
170 CLS
180 INPUT "ENTER NUMBER OF WORDS (MAX 40)",E
190 IF E>40 OR E<1 THEN  GO TO 180
200 DIM b$(E,3)
210 CLS : PRINT "ENTER EACH WORD"
220 FOR I=1 TO E
230 INPUT b$(I)
240 NEXT I
250 IF E<21 THEN  GO TO 280
260 CLS : FOR I=1 TO 20: PRINT AT I,0;b$(I): NEXT I
270 FOR I=21 TO E: PRINT AT I-20,10;b$(I): NEXT I: GO TO 290
280 FOR I=1 TO E: PRINT AT I,10;b$(I): NEXT I
290 COPY
300 PRINT #0;"Any key to continue"
310 PAUSE 0: CLS
320 REM HORIZONTAL SEARCH L-R
330 PRINT "SEARCH HORIZONTAL L-R"
340 PRINT
350 FOR B=1 TO E
360 FOR I=1 TO DD
370 FOR F=3 TO AC
380 IF a$(I,F-2 TO F)=b$(B) THEN  PRINT I;" DOWN ";F-2;" ACROSS  ";b$(B)
390 NEXT F
400 NEXT I
410 NEXT B
420 COPY
430 REM HORIZONTAL SEARCH R-L
440 CLS : PRINT "SEARCH HORIZONTAL R-L"
450 PRINT
460 FOR B=1 TO E
470 FOR I=1 TO DD
480 FOR F=AC TO 3 STEP -1
490 LET c$=a$(I,F)+a$(I,F-1)+a$(I,F-2)
500 IF c$=b$(B) THEN  PRINT I;" DOWN ";F;" ACROSS  ";c$
510 NEXT F
520 NEXT I
530 NEXT B
540 COPY
550 REM VERTICAL SEARCH T-B
560 CLS : PRINT "SEARCH VERTICALLY TOP TO BOTTOM"
570 PRINT
580 FOR B=1 TO E
590 FOR I=1 TO DD-2
600 FOR F=1 TO AC
610 LET c$=a$(I,F)+a$(I+1,F)+a$(I+2,F)
620 IF c$=b$(B) THEN  PRINT I;" DOWN ";F;" ACROSS  ";c$
630 NEXT F
640 NEXT I
650 NEXT B
660 COPY
670 REM VERTICAL SEARCH B-T
680 CLS : PRINT "SEARCH VERTICALLY BOTTOM TO TOP"
690 PRINT
700 FOR B=1 TO E
710 FOR I=DD TO 3 STEP -1
720 FOR F=1 TO AC
730 LET c$=a$(I,F)+a$(I-1,F)+a$(I-2,F)
740 IF c$=b$(B) THEN  PRINT I;" DOWN ";F;" ACROSS  ";c$
750 NEXT F
760 NEXT I
770 NEXT B
780 COPY
790 REM DIAGONAL SEARCH T-B L-R
800 CLS : PRINT "SEARCH DIAGONALLY TOP TO BOTTOM"
810 PRINT
820 FOR B=1 TO E
830 FOR I=1 TO DD-2
840 FOR F=1 TO AC-2
850 LET c$=a$(I,F)+a$(I+1,F+1)+a$(I+2,F+2)
860 IF c$=b$(B) THEN  PRINT I;" DOWN ";F;" ACROSS  ";c$
870 NEXT F
880 NEXT I
890 NEXT B
900 COPY
910 REM DIAGONAL SEARCH B-T L-R
920 CLS : PRINT "SEARCH DIAGONALLY BOTTOM TO TOP"
930 PRINT
940 FOR B=1 TO E
950 FOR I=DD TO 3 STEP -1
960 FOR F=AC TO 3 STEP -1
970 LET c$=a$(I,F)+a$(I-1,F-1)+a$(I-2,F-2)
980 IF c$=b$(B) THEN  PRINT I;" DOWN ";F;" ACROSS  ";c$
990 NEXT F
1000 NEXT I
1010 NEXT B
1020 COPY
1030 REM DIAGONAL SEARCH T-B R-L
1040 CLS : PRINT "SEARCH D TOP TO BOTTOM R-L"
1050 PRINT
1060 FOR B=1 TO E
1070 FOR I=1 TO DD-2: FOR F=AC TO 3 STEP -1
1080 LET c$=a$(I,F)+a$(I+1,F-1)+a$(I+2,F-2)
1090 IF c$=b$(B) THEN  PRINT I;" DOWN ";F;" ACROSS  ";c$
1100 NEXT F
1110 NEXT I
1120 NEXT B
1130 COPY : CLS
1140 REM DIAGONAL SEARCH B-T R-L
1150 CLS : PRINT "SEARCH D BOTTOM TO TOP R-L": PRINT
1160 FOR B=1 TO E
1170 FOR I=DD TO 3 STEP -1
1180 FOR F=1 TO AC-2
1190 LET c$=a$(I,F)+a$(I-1,F+1)+a$(I-2,F+2)
1200 IF c$=b$(B) THEN  PRINT I;" DOWN ";F;" ACROSS  ";c$
1210 NEXT F
1220 NEXT I
1230 NEXT B
1240 COPY
1250 STOP
1260 REM SUBROUTINE TO RECTIFY          ANY ERRORS IN GRID
1270 INPUT "WANT TO CHANGE ANY?";Z$
1280 IF Z$="N" THEN  RETURN
1290 IF Z$="Y" THEN  GO TO 1310
1300 GO TO 1270
1310 INPUT "INPUT THE COORDINATES FOR THE  LETTER YOU WISH TO CHANGE";H;J
1320 INPUT "LETTER REQUIRED";Z$
1330 LET a$(H,J)=Z$
1340 INPUT "DO YOU WISH TO ALTER ANY MORE  LETTERS?";X$
1350 IF X$="N" THEN  RETURN
1360 IF X$="Y" THEN  GO TO 1310
1370 GO TO 1300
```



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A blank display

Prolong the life of your monitor or TV with this program
by ***David Pilling***

One fear which many people express when they first buy a home computer, is that it will damage their TV set. The most likely problem is that if the same image is left on the screen for long enough, it will become permanently burned on to the face of the tube. In normal operation, this is unlikely to occur.

However, there are many occasions when it is convenient to leave the computer switched on displaying the same thing for a period. For instance, if it is performing a long calculation, or if the program in it has taken a long time to load. More likely, is that you suddenly have to leave it to go and do something. In all these events, the same (possibly bright) image will be left on the screen. The fact is, that from the point of view of prolonging the life of the picture tube and the high voltage power supplies (both expensive to replace) in the monitor or TV, it would be better to make them work less hard by switching off the display in such circumstances.

The program here will give a display blanking facility to the BBC micro. Once it has been run, then if no keys are pressed for a preset period, the screen will be blanked out, ie, go black. As soon as a key is pressed the contents of the screen will reappear, exactly as before the blanking took place.

To get this handy feature on to your computer type in and save the listing. Running it will set up the display blanker. There are several points to note about the program. First, the value given to the variable *btime%* in Line 140 is the number of seconds which have to elapse before blanking takes place.

The machine code for the blanker takes up just 125 bytes. Obviously, this must be put somewhere in the computer where it will not be corrupted by other programs. The value of the variable event defined in Line 90, fixes the location of the blanker. For a tape based system a good value is *&D01*. For a disc based machine, a typical value would be *&A00*; putting the blanker in the RS423 input buffer. Other possible places are the soft key buffer at *&B00*, the RS423/cassette output buffer at *&900* and the soft character definitions at *&C00*.

The program works by enabling the key press and 50Hz events and then intercepting the event vector. Every time an event takes place, the machine code at Line 250 is entered. If the event was a 50Hz one, the section of code between Lines 280 and 340 is executed. This increments the time since a key was last pressed (held in the locations *time* and *time+1*). If the time exceeds *btime%* the display is blanked by setting the number of columns displayed by the 6845 cathode ray tube controller chip to zero. This is done by the code between Lines 320 and 340.

When a key press event occurs, the code between Lines 350 and 430 is executed. This begins by setting the time since a key was pressed to zero, then if the display was blanked (determined by the value of the location state) the section from Line 390 to Line 430 restores the display. It does this by using an *Osbyte* call to discover which *Mode* the computer is in and then looking up in the table at location data (initialised in Line 530) the correct number of display columns to insert in the 6845.

The final part of the program (Lines 440 to 500) is concerned with what happens when *Break* is pressed. Normally, doing this resets the vectors in the machine and switches off the events, meaning that the blanker would no longer work. However, it is possible by writing the appropriate machine code to location *&287* (done in Line 640) to execute the routine at Line 440 each time *Break* is pressed. This routine resets the event vector to point to the blanker and enables the events.

If the program is run twice without resetting the event vector, it will end with a beep and will not generate any machine code.

The fact that once the program has been run, it is not possible to reset the event vector by pressing *Break* poses something of a problem when debugging. The simplest solution, is to type *?&287=0* then press *Break* and type *Old* each time you want to try out a correction. Another thing which makes it easier for the program to work, is to start off with a small value for *btime%*, eg, 10.

Often people have a short program that they run when they switch their BBC computer on, to customise the machine to their particular taste such as defining soft keys and setting up key repeat delays – display blanker should be a useful addition to such programs.

```
10REM ========================
20REM
30REM DISPLAY BLANKER
40REM (c)
50REM D.J. Pilling
60REM
70REM ========================
80
90event=&A00
100
110REM btime% is the number
   of
120REM seconds before blanki
   ng
130
140btime%=120
150
160PROCSETUP
170IFevent=eev VDU7:END
180PROCASSEMBLE
190PROCVECTORS
200END
210DEFPROCASSEMBLE
220FOR pass=1 TO 3 STEP 2
230P%=event
240[ OPT pass
250 PHP:PHA:CMP#2:BEQ key
260 CMP#4:BEQ vert
270.ret PLA:PLP:JMP eev
280.vert
290 INC time:BNE ret
300 INC time+1:LDA time+1
310 CMP#btime%:BNE ret
320.blank LDA#1:STA sheila
330 LDA#0:STA sheila+1
340 STA state:BEQ ret
350.key
360 LDA#0:STA time:STA time
   +1
370 LDA state:BNE ret
380 TXA:PHA:TYA:PHA
390.dblank LDA#135:JSR OSBYT
   E
400 LDA#1:STA sheila:STA sta
   te
410 LDA data,Y:STA sheila+1
420 PLA:TAY:PLA:TAX
430 JMP ret
440.brk BCS brk2:RTS
450.brk2 LDA#event MOD256:ST
   A evv
460 LDA#event DIV256:STA evv
   +1
470 LDA#14
480 LDX#4:JSR OSBYTE
490 LDX#2:JSR OSBYTE
500 RTS
510:]
520data=FNS(8)
530!data=&50505050:data!4=&
   28282828
540time=FNS(2):state=FNS(1)
550!time=&00010000
560NEXT
570ENDPROC
580DEFFNS(N):P%=P%+N:=P%-N
590DEFPROCVECTORS
600?evv=event MOD256
610?(evv+1)=event DIV256
620*FX14,2
630*FX14,4
640P%=&287:[JMP brk:]
630ENDPROC
660DEFPROCSETUP
670sheila=&FE00
680OSBYTE=&FFF4
690evv=&220
700eev=?evv+256*evv?1
710btime%=btime%/5.12
720ENDPROC
```

A classic beginning

A step by step implementation of a classic game for the Amstrad machines by ***Ian Morton***

Looking through my old program listings recently I came across a game that I'd typed into one of my first computers. I played it on a teletype in those days and it was totally text orientated. It had to be, at a printing speed of ten characters a second. I dreamt that we might one day have screens that can take two or three thousand characters a second as they do now. (They were certainly not the 'good old days'!) After having come back into the land of the living, I realised that I had a nice new Amstrad machine on my desk, and it was only a Basic program. I could have converted it line for line, but it seemed silly not to use the better facilities of the Amstrad.

I have written the program with the idea of showing how some of the printing facilities and the speed of the Amstrad could be used, but in the end it has turned out to be quite a challenge to play. The idea is to land, gently, on a planet surface. With only one direction of rocket to control, this might seem to be fairly easy, but with the complex equations in the program, and by starting at a different height and speed each game, the program becomes extremely testing.

Program notes

You will find the more variable parameters towards the beginning of the program, or the beginning of the individual subroutines. So, with the Amstrad having only four colours in this mode, I decided which they should be at the outset and the values are set in Line 90. Only pens two and three are set, since I was happy enough with the blue and yellow of the default pens zero and one. Similarly, the subroutine for scrolling a message across the screen can be taken out for use in other programs. The parameters for its position and size are all in its first line, Line 680. The variable '*minx*' is the left hand column, '*widex*' is the width of the display. If you set the width to two, you will see the text scrolled across a two character display, not too convenient!

The Amstrad has window facilities, and, even though the program does not need to send output to more than one screen, the facility can still be useful. By setting up window number 1, whenever we use a *Cls #1* just the area of that window will be cleared. This gives a simple way to set the background colour for the instrument panel. We can then print over the background as though it were part of the full screen.

Now let us turn our attention to the printing. The Amstrad has two ways of printing text at specific locations. The first is the *Locate* command. This command is similar to the *Print At* facility on the Spectrum, or *Tab* on a BBC. It sets the position of the text cursor at a character location specified by the following two parameters for *x* and *y* positions. It has been used to the message scroll routine, such that parameters for *x* and *y* positions. It has been used in the message scroll routine, such that we continually reprint the text string of increasing length, while, at the same time, moving the start location from the end to the beginning of the slot. By adding a set of spaces, of equal length to the message area, we can scroll the message completely away.

The control panel print routine also uses the *Locate* command to print the values for the various instruments. Notice how easy it is with Amstrad Basic, to format a number for two decimal places. Other micros have used different methods to format the printing. With the Amstrad, we just need to set the number of '#' characters for the digits that we want to be printed. This also defines the number of columns that are to be used for the integer and decimal parts of the number, so our display is exactly as we want it. The value itself is not affected in any way. Some other Basic's require the programmer to calculate how big the number is, to calculate the correct column himself and to round the number to the correct number of decimal places before printing.

The alternative method of positioning text on the screen is to use the graphics cursor. The Amstrad is similar to the BBC in having two cursors, a text cursor and a graphics cursor. The Amstrad however can also print its text characters at the graphics cursor position after using the *Tag* command. This means that a character can be printed to align with a pixel position, not just to a full character space. I have used this facility to bring the rocket down one line at a time.

The characters of the rocket are defined using the *Symbol* command. The command is followed by the ASCII value of the character, the decimal value shown with each character in appendix 3 of the Amstrad manual. The following eight values are the values for each of the rows of the character. By totalling the

```
10 REM
20 REM   LUNAR LANDER
30 REM   IDM
40 REM
50 RANDOMIZE TIME
60 PAPER 0:PEN 1
70 CLS
80 GOSUB 1410
90 INK 2,6:INK 3,16
100 GOSUB 820
110 GOSUB 1010
120 a$=" Get ready to start"
130 GOSUB 650
140 GOSUB 1260
150 IF height<=0 THEN GOTO 320
160 LET b$=INKEY$
170 IF b$=" " THEN burn=burn*1.6+2 ELSE burn = burn/1.5-1
180 IF burn>200 THEN burn=200
190 IF burn<0 THEN burn=0
200 IF fuel <= 0 THEN burn = 0
210 IF fuel<= burn/10 THEN burn=fuel*10
220 accn=(1.673-burn*0.259-((burn*0.0259)*(100/(fuel+50))))/10
230 k=vspeed+accn
240 height=height-((vspeed+k)/20)
250 vspeed=k
260 fuel = fuel-(burn/10)
270 IF fuel<0 THEN fuel=0
280 GOSUB 1010
290 GOSUB 1260
300 FOR i=0 TO 150:NEXT i
310 GOTO 150
320 REM
330 REM   hit ground
340 REM
350 FOR i=0 TO 5
360 SOUND 1,20,10
370 NEXT i
380 a$="  contact":GOSUB 650
390 vspeed = ABS(vspeed)
400 IF vspeed>0.5 THEN 460
410 a$=" hot shot pilot "
420 FOR i=0 TO 20
430 SOUND 1,30-i,10
440 NEXT i
450 GOTO 630
460 IF vspeed > 1 THEN 530
470 a$= " spilt the tea !!"
480 GOSUB 650
490 FOR i=0 TO 5
500 SOUND 1,20,10
510 NEXT i
520 GOTO 630
```

values for each dot in the row, we end up with the eight values that go into the *Symbol* command. When printing text, the operating system will look for a user defined value for any character of value 240 or more. This is the default value, if the program requires more user defined characters than 240-255 then the user can set a lower figure at which they start. The top and bottom lines are both empty of dots so that as the program moves the rocket down or up, this line will clear away any trailing dots from previous printing. In this program we must also print two spaces above the rocket in case it has moved more than one line at a time. At the end of the routine to print the rocket we must reset the normal printing mode, by using the *Tagoff* command.

The game itself is based on the old idea of trying to land on a planet surface, by burning sufficient fuel to balance the forces of gravity. Quite simple you might think, but the older programmers among you might remember how difficult it was to balance up these forces of nature. By creating equations that are reasonably complex, there is no simple solution to the problem. By starting each landing with a random set of circumstances, it guarantees the need for a considerable amount of thought. The older game used to allow you to sit and think for a while between each of the one second intervals. This program plays in real time, albeit slightly slowed down.

To play the game, simply press the space bar to give thrust, and start to learn how the thrust and momentum do not react immediately, but take time to build up their force. This is made slightly easier by having a logarithmic type scale where the values increase more quickly at higher values.

Success of the landing depends on the landing speed of the rocket. Landing at less than 0.5 mph is a sign of expertise. Any higher speed than this and the result will vary from a bent chassis to a large crater.

The Amstrad gives a lot of flexibility in creating graphics or printing text. I could have added a lot more to the program to give such things as crash sequences, a top ten table, a "proper" circular speedometer, flames and noise, but all this would have added to your typing.

```
530 IF vspeed > 5 THEN 570
540 a$=" bent the chassis !"
550 GOSUB 650
560 GOTO 630
570 REM
580 FOR i=0 TO 20
590 SOUND 1,1000*RND(13),10
600 NEXT i
610 a$=" crashed at speed "
620 GOSUB 650
630 FOR i=0 TO 1000:NEXT i
640 GOTO 60
650 REM
660 REM   print message
670 REM
680 minx=1:widex=20:maxx=minx+widex
690 y=2:PAPER 2:PEN 0
700 FOR i=1 TO widex:a$=a$+" ":NEXT i
710 SOUND 1,20,10:FOR j=1 TO 100:NEXT j:SOUND 1,20,10
720 FOR i=1 TO LEN(a$)+1
730 LOCATE MAX(maxx-i,minx),y
740 PRINT MID$(a$,MAX(i-widex,1),MIN(i,widex));
750 k=100
760 IF i<>widex THEN 780
770 k=1000:SOUND 1,20,10:FOR j=1 TO 100:NEXT j:SOUND 1,20,10
780 FOR j=1 TO k:NEXT j
790 NEXT i
800 PAPER 0:PEN 1
810 RETURN
820 REM
830 REM   instruments initialise
840 REM
850 LOCATE 15,1:PRINT "LUNAR LANDER";
860 LOCATE 1,20:PRINT "SPACE for thrust";
870 WINDOW #1,1,21,5,25
880 PAPER #1,3:CLS #1
890 PAPER 0:PEN 1
900 LOCATE 1,25:PRINT "SPACE for thrust";
910 LOCATE 1,7:PRINT "fuel";
920 LOCATE 1,11:PRINT "thrust";
930 burn = 0
940 LOCATE 10,21:PRINT "height"
950 height = INT(RND(13)*32579+16735)/100
960 LOCATE 10,14:PRINT "speed"
970 vspeed=INT((height*100)/5.0123)/100
980 fuel=INT(height*9+800+RND(13)*10)/10
990 PAPER 0:PEN 1
1000 RETURN
1010 REM
1020 REM   print current values
1030 REM
1040 LOCATE 10,7:PRINT USING "####.##";fuel;
1050 PAPER 2:LOCATE 1,8
1060 IF fuel=0 THEN 1100
1070 FOR i=1 TO INT(fuel/30)+1
1080 PRINT " ";
1090 NEXT i
1100 PAPER 3:PRINT " ";
1110 LOCATE 10,11:PAPER 0:PRINT USING "###.##";burn;
1120 LOCATE 1,12
1130 IF burn = 0 THEN 1180
1140 PAPER 2
1150 FOR i=1 TO INT(burn/10)+1
1160 PRINT " ";
1170 NEXT i
1180 PAPER 3
1190 FOR i=INT(burn/10)+2 TO 21
1200 PRINT " ";
1210 NEXT i
1220 PAPER 2:LOCATE 10,16:PRINT USING "####.##";vspeed;
1230 LOCATE 10,23:PRINT USING "###.#";height
1240 PAPER 0:PEN 1
1250 RETURN
1260 REM
1270 REM  print ship
1280 REM
1290 TAG
1300 m=240
1310 h1=height/2+63
1320 MOVE 500,h1:PRINT "  ";
1330 FOR i=0 TO 2
1340 h1=h1-16
1350 MOVE 500,h1
1360 PRINT CHR$(m+(i*2));CHR$(m+(i*2)+1);
1370 NEXT i
1380 PAPER 0:PEN 1
1390 TAGOFF
1400 RETURN
1410 REM
1420 REM   set up
1430 REM
1440 SYMBOL 240,0,0,1,2,2,6,5,4
1450 SYMBOL 241,0,128,192,32,32,96,80,144
1460 SYMBOL 242,8,22,17,16,16,12,06,83
1470 SYMBOL 243,8,52,196,4,4,12,53,229
1480 SYMBOL 244,114,82,114,82,122,71,66,0
1490 SYMBOL 245,39,37,39,37,175,113,33,0
1500 x=320:y=20:z=-1
1510 MOVE x,y
1520 x=x+ABS(RND(13)*10)
1530 y=y+z*ABS(RND(13)*10)
1540 z=-z
1550 DRAW x,y
1560 IF x<640 THEN 1520
1570 MOVE 320,0:DRAW 640,0
1580 RETURN
```

Open Forum

We are always actively seeking programs for publication – either for Open Forum, the machine pages or Star Game. When sending in a program for consideration, a clear program listing should be sent, together with, wherever possible, a saved copy on cassette. Documentation – usually not more than 1000 words – should start with a general description of the program, what it does, and then some detail of how the program itself is constructed. We pay very competitive rates, according to the length and nature of the program and the quality of the accompanying documentation.

Hypnotism

on Commodore 64

To gain the effect desired the program utilises UDG's and the 64 is put into Extended Colour Mode.

The main program is Basic but to sustain the effect a short simple M/C routine is used.

An unusual aspect of the generated effect is that the optic messages to the brain are confused for a while after you have finished looking at it, look at the centre of the square for about 30 seconds, then look at the keyboard (or anything else). Strange, isn't it?

Better colour combinations are possible but the ones that I have found effective are Screen Col -14, Border Col -14, Colour one -7, Colour two -2

```
1 INPUT"▯ SCREEN COL",SC
2 IF SC>15ORSC<0THEN1
3 INPUT"▯ BORDER COL",BC
4 IF BC>15ORBC<0THEN3
5 INPUT"▯ COLOUR #1",GC
6 IF GC>15ORGC<0THEN5
7 INPUT"▯ COLOUR #2",CG
8 IF CG>15ORCG<0THEN7
9 INPUT"▯ DELAY SPEED (0-255) 0=FASTEST",SP
10 IF SP>255ORSP<1THEN9
11 PRINT"▯▯ A HYPNOTISM PROGRAM▯BY J.P.FRANCIS":F=49152
15 POKE646,GC:FORT=1TO32:READA:FORL=0TO7:READB:POKEA+L,B:NEXTL,T
22 READA:IFA=-1THEN26
24 POKEF,A:F=F+1:GOTO22
26 POKE53272,(PEEK(53272)AND240)+12
30 POKE53282,CG:POKE53281,SC:POKE53280,BC:POKE53265,PEEK(53265)OR64
40 POKE49247,SP:POKE49245,SP
51 PRINT"▯":PRINTTAB(9)"▯TTTTTTTTTTTTTTTTTTTT#"
52 PRINTTAB(9)"-|TTTTTTTTTTTTTTTTTT#-"
53 PRINTTAB(9)"--|TTTTTTTTTTTTTTTT#--"
54 PRINTTAB(9)"---|TTTTTTTTTTTTTT#---"
55 PRINTTAB(9)"----|TTTTTTTTTTTT#----"
56 PRINTTAB(9)"-----|TTTTTTTTTT#-----"
57 PRINTTAB(9)"------|TTTTTTTT#------"
58 PRINTTAB(9)"-------|TTTTTT#-------"
59 PRINTTAB(9)"--------|TTTT#--------"
```

The Music Box



Enter Entersoft

Last time I mentioned the music software situation with the Amstrad. This is a Z80-based machine, and it's interesting to note that, with the exception of the Yamaha CX5M MSX machine, the best music software is available for 6502/10 machines – the Commodore 64, the BBC and the Apple. I'm not sure why this should be the case since, while the 6502 family is probably easier to program, it is equally probably not as powerful a microprocessor as the Z80. However, that's the way the cookie's crumbled.

With that in mind, I was interested to receive a letter recently from Entersoft, the software arm of the Enterprise computer firm. Now, I've seen the Enterprise and it certainly looks like a useful machine (although I'd like to actually try it out over an extended period. This is a Z80 machine – the one that's been through several changes of personality (Elan, Flan and finally Enterprise), and promised to be the last word in home computing. Well, that promise was made a couple of years ago and things have changed radically since then.

In any case, Entersoft wish to commission 'a really interesting music program'. Since the computer is a Z80 machine, they'd like it to be written in Z80 assembler. In fact, they'd like it to be already written, and capable of relatively simple conversion. Now I don't know of any really interesting existing music programs for Z80 machines, so if Entersoft are to come up with something, it'll most likely be a version of a program that isn't yet commercially available. If any readers are working on something suitable, get in touch with the column and I'll pass your letter on. Who knows, riches beyond the dreams of avarice may be within your grasp!

Finally, news of two programs for the Commodore (not a Z80 machine). The Broderbund program, *The Music Shop*, that I mentioned some time ago is not yet available in this country. It will be released later in the year (along with something called *The Print Shop*) and it will be available through Ariolasoft. Also unavailable as I write is Activision's *Music Studio*. I'm told that unforeseen problems have delayed its release. Well, they would be unforeseen, wouldn't they? Otherwise how could we explain the rash of ads which trumpeted the program in the middle of April?

Gary Herman

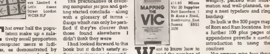
The Music Box is a weekly column with news, reviews and readers comments on all aspects of micros and music.

Any readers with experience of computer music making or companies with new product news are invited to write to drop a line explaining what they're doing to Gary Herman, The Music Box, 12-13 Little Newport Street, London WC2R 3LD

```
60 PRINTTAB(9)"————————|T*————————"
61 PRINTTAB(9)"————————|*————————"
62 PRINTTAB(9)"————————|L————————"
63 PRINTTAB(9)"———————|LL|———————"
64 PRINTTAB(9)"——————|LLLL|———————"
65 PRINTTAB(9)"—————|LLLLLL|——————"
66 PRINTTAB(9)"————|LLLLLLLL|—————"
67 PRINTTAB(9)"———|LLLLLLLLLL|————"
68 PRINTTAB(9)"——|LLLLLLLLLLLL|———"
69 PRINTTAB(9)"—|LLLLLLLLLLLLLL|——"
70 PRINTTAB(9)"—|LLLLLLLLLLLLLLLL|—"
71 PRINTTAB(9)"—|LLLLLLLLLLLLLLLLLL|—"
72 PRINTTAB(9)"|LLLLLLLLLLLLLLLLLLLL|"
100 SYS49152
290 REM ****DATA************
300 DATA12280,204,204,204,204,204,204,204,204
301 DATA12296,102,102,102,102,102,102,102,102
302 DATA12304,51,51,51 51,51,51,51,51
303 DATA12312,153,153,153,153,153,153,153,153
304 DATA12328,51,51,51,51,51,51,51,51
305 DATA12328,102,102,102,102,102,102,102,102
306 DATA12336,204,204,204,204,204,204,204,204
307 DATA12344,153,153,153,153,153,153,153,153
308 DATA12352,204,204,207,207,192,192,255,255
309 DATA12360,102,103,103,96,96,127,127,0
310 DATA12368,51,51,48,48,63,63,0,0
311 DATA12376,153,152,152,159,159,128,128,255
312 DATA12384,0,0,255,255,0,0,255,255
313 DATA12392,0,255,255,0,0,255,255,0
314 DATA12400,255,255,0,0,255,255,0,0
315 DATA12408,255,0,0,255,255,0,0,255
316 DATA12416,255,255,0,0,255,255,0,0
317 DATA12424,0,255,255,0,0,255,255,0
318 DATA12432,0,0,255,255,0,0,255,255
319 DATA12440,255,0,0,255,255,0,0,255
320 DATA12512,51,51,243,243,3,3,255,255
321 DATA12520,102,230,230,6,6,254,254,0
322 DATA12520,204,204,12,12,252,252,0,0
323 DATA12536,153,25,25,249,249,1,1,255
324 DATA12448,255,255,192,192,207,207,204,204
325 DATA12456,0,127,127,96,96,103,103,102
326 DATA12464,0,0,63,63,48,48,51,51
327 DATA12472,255,128,128,159,159,152,152,153
328 DATA12480,255,255,3,3,243,243,51,51
329 DATA12488,0,254,254,6,6,230,230,102
330 DATA12496,0,0,252,252,12,12,204,204
331 DATA12504,255,1,1,249,249,25,25,153
400 DATA 169,3,141,168,2,32,83,192,162,22
401 DATA 160,22,177,251,24,105,1,145,251,136
402 DATA 208,246,32,69,192,202,208,238,32,92
403 DATA 192,174,168,2,202,142,168,2,208,221
404 DATA 32,83,192,162,22,160,22,177,251,56
405 DATA 233,3,145,251,136,208,246,32, 69,192
406 DATA 202,208,238,32,52,192,76,0,192,165
407 DATA 251,24,105,40,133,251,165,252,105,0
408 DATA 133,252,96,169,88,133,251,169,4,133
409 DATA 252,96,162,60,160,60,136,208,253,202
410 DATA 208,248,173,17,208,41,128,240,249,173,17
411 DATA 208,73,128,41,128,240,247,96,-1
```

Hypnotism
by J Francis

Book Ends



Book *Women and Computing: The Golden Opportunity* **Price** £8.95 **Micro** Any **Supplier** Papermac Macmillan Publishers Limited 4 Little Essex Street London WC2R 3LF

That over half the population make up a relatively small proportion of computer users is ludicrous, as demonstrated by the argument of Rose Deakin's book. Within its pages she continues to discuss the home potential of micros, illustrated by eight case histories. Obviously intended to be confidence building and/or inspirational, these are rather leaden and some of the problems documented could even prove a disincentive!

The practicalities of cracking computer jargon and getting started conclude – along with a glossary of terms – things which can only be justified if they're clearer than those found elsewhere. I didn't think they were.

I had looked forward to this book but it didn't satisfy either as polemic or demystification. Its narrow concentration on the micro as business tool makes computing seem inevitably vastly expensive. Considering the topic's potential, a golden opportunity missed.

John Minson

Book *Mapping the Vic* **Price** £11.95 **Micro** Vic 20 **Supplier** Holt Saunders 1 St Anne's Road, Eastbourne East Sussex BN21 3UN

Want to know how to read the number of characters in a file name direct from memory? Or where the screen map Ram is on a Vic-20 with 8K or more expansion? To paraphrase this book's introduction a memory map is to computing what a road map is to driving.

Import prices make this volume costly, but it is weighty, packed with information and well-planned, using a neat typeface and ring binding.

Its bulk is the 300 page map of Rom and Ram locations but a further 100 plus pages of appendices provide a useful introduction to using the routines.

Vic owners who fear their micro is now obsolete and are willing to develop Basic should find a whole new lease of life here.

John Minson



Revised versions

Sometimes I think it's a miracle any of our Pokes work correctly at all – as promised I found out what was wrong with the *Knightlore* routine that was in Vol 4 No 14. It turns out to be a simple thing, you just need to add another *Gosub* 80 after the first *Gosub* 80 in Line 10. This was also pointed out by Kenneth Devlin of Greenock, who in addition gave these following small adaptations to make the progam work on *Underwurlde* as well – in Line 80 change 41012 to 41008 and change 41021 to 41017, change Line 30 to *Print Usr* 26610, change Line 30 *to Poke* 59376,0 for endless lives.

On the subject of misprints here are some revised versions of the CBM 64 pokes for *Manic Miner* from Grant Williamson of Forres – type *Verify*"" (return) load first part. Then type *Load* "",*1,1* (return). When the load error appears type *Poke 16419, n* (n is screen number 0-18) and *Poke 16424, x* (x is lives – not too many). Finally *Sys 16384* will begin.

Also for *China Miner Verify* ""*(return)* then *Load* "",*1,1 Load* "",*1,1 (return)*. When loaded type *Poke 32776,0* for lives and *Poke 33320, n* (n is screen from 0-29). *Sys 33127* to start.

Finally for *Ancipital, Poke 22743,57 Poke 22744,57* and *Sys16384* to start, but you have to have a breaker switch or some other method of getting these pokes in!

Any, if you are having trouble getting something to work, remember that on June 13th we will be having a special arcade game issue with pages and pages of pokes – so it gives us a second chance to get things right and your chance to catch up on things you missed. (Don't forget to send any Pokes you have, and don't miss this special issue) Whilst it will be a chance to catch up on old Pokes that you have missed, some will be new ones that have been saved up especially.

Something that I will not save until that issue is this routine from David Robinson of Leeds for getting infinite lives on the Amstrad *Jetset Willy*. Type this in and then run the tape as normal. Line 80 gives a message from the turbo loader and can be ommited.

```
10 MODE 1
20 MEMORY &7FED
30 LOAD ""
80 FOR n = 170 to 244
50 READ a$
60 POKE n,VAL("&" + a$)
70 NEXT
80 CLS
90 CALL 170
100 DATA 3e, c9, 32, 80, 81,
21, 00, 80, 11, 01, 80, 01, 05, 00,
36, 00, ed, b0, cd, ве, 7f, 01,
00, 15, 21, 20, 20, 22, 78, af, c5,
21, 8d, al
110 DATA cd, 53, af, 78, 88,
87, 87, 87, 47, 7b, c8, 05, 16,
08, 98, 26, 01, 89, 09, cd, al, bc,
dc, 3b, af, cl, d4, 08, af, c5, f2,
c8, 00, 3e, 7f, 32, f0, 81, c3, 4a
```

The reason I felt it was worth putting in straight away is explained in this letter from our old friend Murray Pope "I think I have found an impossible screen on the Amstrad *Jetset Willy*, namely Decapitare. Because of the weird loader I can't even hack in and poke things right."

The Amstrad version of *JSW* is certainly a worthwhile purchase, having over 130 rooms compared to the 60 of the Spectrum original, but it still defies belief to think that this comedy of errors of the impossible rooms is continuing. If it's true I'm afraid that we will have to wait for one of you lot to find the correcting pokes because Software Projects never came clean with the corrections for the CBM version, possibly because they did not want to reveal how to get past the protection.

Murray goes on to say, "I wonder if software houses can be got under the Trades Descriptions Act or something? Also is it possible to claim money back if it claims something like 'Fast scrolling animation, incredible sound' and is in fact dross?" It's an interesting point, Murray – you would be surprised at how much protection the consumer is given by the Sale of Goods Act – if the thing you purchase is not fit for the use it was intended you are entitled to a full refund and I suppose this applies to games if they contain bugs that make it unplayable – but can you say this is true of just one screen out of over a hundred that do work? Perhaps someone should try it.

As for unrealistic claims it's a much more subjective thing – even a dross game today would have looked pretty amazing two years ago, and you can't expect your local magistrate to be aware of state of the art games to make comparisons.

Since there is space, here are two routines Murray also sent in for the Amstrad. For *Roland Goes Digging* enter this and wind the original past the header

```
10 Memory 17000
20 Load "",17800
30 Poke 17978,0 40
80 Call 18888
```

For *Pyjamarama* replace the header with this

```
10 Memory 8191
20 Load ""
30 Poke 16087,0
40 Call 8192
```

One of the things I must mention is that Andrew Davies who sent in that routine for producing an extra room in the Spectrum *Jetset Willy* that we published a few weeks ago has been snowed under with letters asking how he did it. Anyone who wants a copy of his editing program will have to send an SAE, a blank tape and 10p to cover a photocopy of the listing. In fact it is only fair that if you are writing to anyone who is mentioned in this column you should enclose an SAE if you expect a reply.

Finally this week, Hewson Consultants can hold their heads high for producing a game that really seems to have beaten some of the best players in the country, *Technician Ted*. So here at last is the order of the first ten tasks, which considering how hard it is, may not help you one bit. Ted's Desk, Silicon Slice Store, Slice Diffusion Furnace, Fuming Cupboard, Clean Room, Silicon Etching Tank, Canteen, Photocopier, Board Room and Slice Surface Abrasion.

Bill McMillan of Knottingley has found the first four and warns people to avoid the Breaker Store and Under the Tea Machine because "one wrong move is fatal". Perhaps in a month or so I'll print some more tasks, if anyone has got that far.

Tony Kendle

We are searching for the top UK computer games player – the best there is!

The very best of Britain's game players will get to fight it out on a number of top secret new games – scheduled for release in the autumn

Here's how it works

Study the table below and look at the column for the machine you have – these are the games you'll need to master. Send your high scores in on the form below, making sure that your scores are authenticated by a responsible individual signing the form. Any score achieved using technical short-cuts – such as infinite lives Pokes – will not be accepted.

Between now and September Tony Kendle will be keeping you up to date on the *Arcade Avenue* page with just who has the scores to beat. Then, in September, the top three scorers on each machine will battle it out in a place in the final and the chance to be the first to play our top secret games.

	Commodore	BBC	Spectrum	Amstrad
Game 1	Suicide Express	Elite	Technician Ted	Sorcery
Game 2	Beach Head	Jet Pac	3D Star Strike	Splat!
Game 3	Shoot the Rapids	Chuckie Egg	Cyclone	Manic Miner

Game Wizard Entry Form

Micro

Game 1 score

Game 2 score

Game 3 score

Name

Address

Your signature

Witness's signature

Tony Bridge's Adventure Corner



Phone tips

The emphasis is very much on help this week. I have received a letter from Rita Maloney of Liverpool. "I noted your comments regarding the new Adventurers Club. I know it is a new venture and all will depend on the support given, and I must say that I was delighted with my first 'Member's Dossier' – it made for very interesting reading indeed, full of useful information, coded solutions and new releases.

"I am at present battling with *Zork I*, and when I rang the Helpline I was pleasantly surprised to find that the gentleman who answered was obviously a keen adventurer himself, and his help was based on knowledge of, and interest in, the game. I wish this club every success."

I'm glad to hear that you are so pleased with the new Adventurer's Club, which could well become part of the keen adventurer's staple diet. The Helpline is available at most times to club members, and as Rita has found, is obviously very informed. Don't forget, however, Ken Matthews and his Adventure Helpline, which has been getting adventurers out of sticky situations for some months now. You'll find him on Gravesend 334006.

Another Helpline is *Adventureline*, based in Chelmsford in Essex (where The Grand Elf first saw the light of day, so it has something going for it) – this is run by Roger Garrett, with free membership. He, like the Adventurer's Club, will have a monthly newsletter, although the main activity will be the phone-in Helpline, which will run from 7-9pm and at weekends. Anyone interested should ring 0245 442088.

Still on the subject of Help, Sgt Ivor Williams has written to me again (I mentioned him in Vol 4 No 18) to say that, owing to the mention, he has made contact with many adventurers serving in the forces, and has even managed to solve *Heroes of Karn*, with a couple of hints from Ian Stewartson of the RAF in Germany.

This is what makes adventuring so interesting, surely – it can be even more interesting as a group activity than a solo pastime. Ivor will give any help required in the Interceptor programs, as well as *Heroes*, and all he asks is an SAE (he's just about to have a go at the Level 9 adventures, so might welcome some hints and tips).

A different kind of Help is offered by Jon Snow of Harold Hill – he has completed all of the scenarios in *Eureka!*, but can't seem to find the telephone number which is his passport to fame and riches (what a surprise, Jon!). He would like to get together with others caught in a similar jam, and asks you to pool resources. Call him on Ingrebourne 74289.

Meanwhile, Stewart Wade is asking for Help in *Castle of Terror* – he can enter the Castle and exit with the Maiden and the Treasure, but the death of the Count bars him from ultimate victory. Does anyone know how to Kill the Count? Write to Stewart at 31 Lintan Rise, Catterick, W Yorks DC9 4DN. Svend Sandbaek of Lyngby in Denmark, though, has 'finished' *Castle*, he says, with a score of 330 out of 290. All he had to do was enter the mill, drag the sack back and forth for about 165 times and five points are scored each time – yes, Svend, that's pretty good cheating!

Another adventurer from the European mainland is Josef Jantschek of Vienna. He offers help on *The Hobbit*, *Urban Upstart*, *Invincible Island*, *Lords of Time*, *Colossal Adventure*, and *Zorks 1* and *3*. Josef also wants to contact people who have played *Tir Na Nog* – he has a map of the game, and will be pleased to share it with you, if you can help him find the use for some of the objects. Josef's address is Piaristengasse 1B/7, a-1080 Vienna, Austria.

Yet another offer of help – this time from Kevin Lea, who knows all the problems in *The Hobbit*, *Planet of Death*, *Ship of Doom*, *Invincible Island* and so on. You can write to him at 5 Olaf Place, Walsgrave, Coventry CV2 2DG. As for your problems Kevin, to fly the plane in *Urban Upstart* you have to first read the book, which will give you a crash (is that the right word?) course in aeronautics. And to erect the net in *Circus*, you must Examine Clown, after which everything must now be clear.

Mastertronic's *Wrath of Magra* doesn't seem to have taken off as promised – at least, I have had no letters about it since its release, until this month, when John Wilson wrote to inform me of his success in completing the game. At the time of its release, a competition was announced, but despite a message on the final screen John couldn't find any entry form in the accompanying booklet. Let's hope that you hear from Mastertronic soon, John. Here are a few hints that John would like to pass on.

Balaam is a handy word when said in the right place.

Sell the sword – a more useful weapon is to be found in the temple. In the mine can be found a crystal chest containing the key to Magra's fortress and the star staff which is carried by the Wraith Lord. The staff of creation may be found on the top floor of the fortress. To open the chest, use the star jewel, and to kill the Wraith Lord, use the see god spell. The star staff, meanwhile, may be used to kill the Guardian of the Fortress – to kill Magra herself, use the Aaaaaahhh. . . Here, unfortunately, John's letter ends!

I've always liked *The Wrath of Magra* – although the first version had a painfully slow input and response routine, a lot of atmosphere was invoked, and the program offers one of the most convincing monster-bashing/spell-wielding scenarios in British adventuring (some of the American adventures, like *Wizardry* and the Ultima series, are set in even more detailed fantasy landscapes).

Kenneth Penney writes from St Clement in Jersey: 'Could you tell me if this is a high score in *Doomdark's Revenge* – I completed the mission in 65 days? Special credit goes to the Beyond team for a remarkable game – it was well worth all my effort.' John Vaughan of Strood in Kent can answer your question, Kenneth. 'I may not be the first, but I bet I'm the quickest! 45 days for the Overwhelming Victory.'

But to cap the whole subject of *Doomdark*'s high scores, Mike Ffrench of Chesterfield supplied a print-out to prove his time of just 1 day! Says Mike: 'I'm not going to reveal how this was achieved except to say that I did not in any way break into or alter the program, just that a fortuitous set of circumstances led me to this discovery, and I don't think that this is a bug.' I would like to offer help to any Spectrum adventurers who are stuck with *Doomdark* as well all the usual favourites (SAE please). Write to Mike at 184 Tapton View Road, Newbold, Chesterfield, Derbyshire.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

Fill in the coupon explaining your problem, send it to us and a fellow adventurer may be able to help.

Remember: the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure .... on (micro) ....

Problem ....

Name ....

Address ....



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Sinclair promises

Arun Chada, of Barrow-on-Soar, Leicestershire, writes:

Q **I have been the owner of the Sinclair QL for six months. Sinclair have promised over a hundred games. I have not seen or heard of any games yet. Please could you tell me when the games are coming out and possibly some a few software titles.**

A The appearance of software for the QL has been very disappointing, the promised (over 80) titles have not appeared, although some software houses have produced games for the QL

The recent changes in the UK home computer market (with the effective demise of a number of machines) will probably result in an increase in software for the QL However, the use of the microdrive as a storage medium seems to be the main drawback as far as the software houses are concerned Some titles which have appeared so far are *West*, *Zkul* both these games are available from Talent Software and *QL D-day* is being produced by Games Workshop There is also the promised 'megagame' *Bandersnatch*. Some other (Spectrum) games are also reported to be under conversion although no dates are available

Prestel access

D Staffs of Lincoln, writes,

Q **I have a BBC B computer and are interested in accessing Prestel I have heard of a modem called the Nightingale, but I don't know who manufactures it or whether it can access Prestel. Can you help?**

A After many hours searching through my archives I came up with the information you require (actually it took me only a few minutes). The modem is manufactured by Pace Software Ltd, of 92 New Cross Street, Bradford BD5 8BS (0274 729306)

It does allow access to Prestel and indeed a software package is supplied (on Eprom) which allows access to other facilities such as Homefax and Telecom Gold As far as I know this package is only available for the BBC.

Software deterioration

Mr Stewart of Aberdeen, writes.

Q **Please tell me if there is such a phenomenon as gradual deterioration of Spectrum software? Mine, or to be more correct, some of mine, seem to be so doing.**

My original copy of *Jet Set Willy* no longer loads nor does my Psion *Chess* so indeed *The Turk*. Some games, notably from Imagine and Bug Byte, load first every time (touch wood).

Assuming that it isn't the software, is it likely to be the power supply or the Spectrum itself?

A I don't think your problem has anything to do with power supply, or indeed a fault in the Spectrum I suspect that it is quite likely to be just poor cassette tape quality. The more often a tape is played the larger the deterioration gets, until the quality is so poor that loading errors are experienced I myself have a couple of programs that no longer load (in their original form), specifically *Black Crystal*

My approach has always been to take a copy of any cassette based software I buy (not for exchange or resale but simply to protect my investment). It seems quite probable that you have either been unlucky in that you have so many faulty tapes (because that is what I say they are), or that your cassette recorder is to blame. Cleaning the heads regularly, and not just when problems are experienced is of paramount importance Oxide deposits left on the heads will damage other tapes quite nicely

A proper keyboard

David McClance of Bolton, Lancashire, writes.

Q **My old 'dead flesh' keyboard for my Spectrum has failed and I am going to get a proper keyboard for it. However, I do not know of one that is fully compatible with the ZX Interface 1 and microdrive. Please could you suggest a good keyboard that is priced below £63, and that needs no modification?**

A The obvious answer seems to be the Sinclair upgrade to the Spectrum + keyboard This is within your price range and offers the compatibility that you want

One note of caution, however, if you are thinking of using other manufacturer's peripherals on the new style Spectrum, beware . . . ! For example, the Cambridge computing intelligent joystick (which has its own interface) will not attach directly to the Spectrum + it needs either the ZX Printer, or one of the other interfaces to be connected.

Simple answer

S Ingleton of Weston-super-mare, Avon, writes

Q **Can I use Atari VCS video games and joysticks on an Atari 800?**

A A simple question, deserving of a simple answer. The Atari 800 can handle the joysticks used on the VCS It will not however be possible to use any of the VCS cartridges. Apart from the fact that the two machines use different processors, the cartridges are quite simply too large to fit into the 800

Connected modem

Peter Thomas of Eastbourne, writes.

Q **I have an Oric-1; is there a modem that I can get for my machine? I hope there is, although one of my friends said that as the Oric has no RS232 interface that it was not possible.**

A Your friend is almost right, the only way that I know of for a modem to be connected to an Oric is via an RS232 adaptor One can be obtained from Modular Concept Peripherals for around £40 This allows any modem to be connected to the Oric You can contact them at 13 High Street, Clydach, Swansea

Tandy competible

Paul Birkin of Beeston, Nottingham, writes

Q **Having looked through the program 'Barchart' for the Dragon 32, published in PCW, I saw that it was competible with my Tandy Color Computer 2 (having checked the manual). It was competible that is except for the £ sign. Could you tell me if this sign is available?**

A The short answer is that the character is not available as standard on your Tandy, however, you can obtain it by redefining the character set (obviously including £ instead of some other character)

Apart from this one small area of difference most Dragon programs will work quite happily on your Tandy

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SPECTRUM S/W ORIGINALS Sherlock £8 Black Crystal £4 Planet of Death and Adventure One £2 each G Bourner 77 Crewe Road Airedale Castleford West Yorkshire WF10 3NG

48K SPECTRUM A phacomp 32 printer paper over £200 of original games inc Alien 8 etc Sell for £200 Tel 01-449 1571

48K SPECTRUM, cheetah speech synthesiser DK Light Pen. Some S/W £90 Write to Mike O Brien 231 East Lancs Road Swinton Manchester M27 1GE

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SPECTRUM PROGRAMMERS KIT compiler character set designer M/C sound library M/C Sprite generator cost £28 accept £8 Write S Johnson 78 Nairn Street Crookes Sheffield S10 1UN or Tel (0742) 661871

OVER £300 of spectrum software for sale including games like The Hobbit and Sherlock Also books and magazines all in excellent condition Selling for £110 Tel 01 683 7317

SPECTRUM 48K computer tape recorder joystick joystick interface numerous games 200 magazines on/off and reset switches sound amplifier and excellent console £225 Tel Belfast (0232) 666636 after 6pm

48K SPECTRUM joystick interface tape recorder 13 games £180 Tel 010462 1913

SPECTRUM 48K and Turbo Interface Quickshot joystick and loads of S/W Cassette book £200 or swop for CBM 64 monitor Tel 01 788 8617

SPECTRUM 48K 37 original games £100 of books sound amplifier joystick joystick interface and £100 of magazines worth £150 Sell £50 Tel 0525 221 388

JOYSTICK INTERFACE for Spectrum DK Tronics dual port, 5 months Kempston and Interface 2, boxed as new only £7 ... James Barker 30 Pinewood Close Southwell Notts NG2 5BDD Tel (0636) 813588

SINCLAIR SPECTRUM plus (upgraded) with all leads manual and introductory software £80 ono Tel 061 773 2525 after 6pm please

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SPECTRUM SOFTWARE for sale £30 worth of games will sell for only £15 inc p&p Will not split Tel Leeds 824698

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SPECTRUM for sale 48K complete with leads instruction manuals and tape recorder only £80 Telephone 01 348 3924 and ask for Graham First offer secures

48K SPECTRUM data recorder Ram Turbo joysticks Currah Speech unit over £100 of games with leads Vgc quick sale £135 ono Tel Deeping 0778 348170 (between 9 and 5)

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SPECTRUM originals for sale inc Booty Kong II Jet Set Willy Tel David 0734 861401

48K SPECTRUM 8 month Guarantee programmable I/F joystick with s/w Sell £195 ono Tel 01 368 7848

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48K SPECTRUM case tape recorder Turbo and Cambridge interfaces two joysticks sound amplifier £200 games books mags worth £400 Sell £200 ono Tel 01-287 4612

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48K SPECTRUM + Interface + Micro Drive + Sinclair Printer + interface II + Currah Speech + Kempston Joystick + Tape Recorder £300 of software All for £200 Tel 01 879 1267

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SPECTRUM 48K with Lo-Profile keyboard Currah speech joystick interface £40 worth of mags 800 games + sell for £190 Tel Weston-super-Mare (0934) 33685

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48K SPECTRUM leads manual etc over 100 leading titles £80 Tel Crewkerne 0460 74467

AMSTRAD CPC464 (colour monitor version) extended warranty £100 + software and manuals Excellent condition £265 only Tel Clacton 0255 814523

OPUS JVB Hi res colour monitor OL adaptor £105 Write to Lucien Chugher Folywell Manor Manor Road Oxford or Tel Oxford 250517 (university)

AMSTRAD CPC464 Green screen computer with approx 80 titles quality software business utilities and demos. £180 Tel Brighouse 0484 714911 after 6pm

58K SHARP MZ700 + built-in cassette recorder + lots of games + joystick excellent condition worth over £300 sell for just £180 Tel Burnham 63004 after 6pm

AMSTRAD DMP1 dot matrix printer for sale As new with Easi Amsword £150 ono Tel York 0904 786154

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VIZAWRITE word processor program and superbase both for CBM64 and hardly used Will sell £35 each or £65 the pair Tel 0382 25428 after 7pm Dundee

BROTHER M1009 printer with tractor feed unit, centronics and RS232 ports, two months old At bargain at £180 or exchange for Commodore 64 with C2N unit and software Tel 041 580 9110 Glasgow

APPLE II green screen monitor new also unused in packing with warranty card £85 Bashup mags vols 1 2 (20 issues) in binders Cost £27 accept £12 Tel 01 444 5244 evenings N London

CBM64 disc drive printer plotter CN2 recorder Simons basic 2 joysticks manuals £80 worth of s/w diskettes and computer desk £420 ono Tel Mark 01-688 0804

DOWNSWAY programmable joystick interface good condition cost £24 accept £12 Tel Fml 0277 232082 after 4 30pm

KEMPSTON PRO joystick interface suitable to a Spectrum good condition Apply in writing to L Fraser 4 Newhall Mount Bradford West Yorkshire BD6 1DG

1967 TRIUMPH BONNEVILLE up for grabs, in exchange for any decent computer eg Atari 800XL, BBC B Apple with disc drive and printer Tel 0664 68398 Melton Mowbray Get out and RIDE!!

VU FILE cash controller £4 each For 48K speccy want master file will swap for above Tel 061 748 7822

WANT March and April 1868 your computer pay £1 each plus postage Tel Bolton 38802.

SWAP Spectrum + DMTronics keyboard, Interface 2 and Microdrive and tape recorder for CBM 64 and data recorder. Will negotiate. Also for sale Kempston and Protek Interface £15 or will do the lot for £200. Tel 01-478 1082 (Plaistow)

AMSTRAD software wanted. No copies originals only. Game Stratus, Forest Worlds End etc. Will sell. Paul, 81 St Smith rs Wk Acomb York

SWAP my C.B. Maxcom Super 4E (40 channel) for a 48K Spectrum C.B plus antenna spare leads instructions power supply and book. Phone (0732) 353911 (evenings only please!)

WANTED Commodore basic Compiler on disc. Tel after 5pm 01-478 7864

WANTED 8K Ram packs for the Vic 20 also M board. Send details price to P Hellas, 5 Beatrice Ave, Babington, Merenymte LE3 5JS. None working packs considered

SWAP Brother HR-5 printer lead and Dragon 32 for CBM 64 etc. Or will sell or sell. 0942 813686

WANTED Alphacom 32 printer plus paper. Will swap Currah Microspeech and software. Write to Rick, 6 Bar Lane, Staincross, Barnsley, South Yorkshire S75 6DQ

WANTED User handbook per Memotex 2073 printer. Ring Loics 739914 evens

WANTED for TI99/4A. Plug in stand alone RS232 interface. Please write Re 1 Bryn Hermon Llanrug Gwynedd LL55 4PE

WANTED Microdrive and interface 1. Must be very reasonable would consider one not working or slightly damaged. Tel Thanet (0843) 68522 after 6pm

SWAP ZX81 plus 16K memory magazines and tape recorder plus software for 16K Spectrum. Write to Andrew Mc Govern, 5 Stakesby Close, Guisborough, Cleveland TS14 8TJ

SPECTRUM 48K interface 1 + Microdrive plus cassette player plus Kempston Interface 2 + joystick + over £150 top software + books etc. Swap for CBM 64 & C2N 5 games. Tel Bolton 382116 after 6 P Crotz

WANTED Have you bought a new Spectrum + keyboard? Well you then I need your old one as you. I'll give you £5 for it. Tel Mike on Doncaster 863794

JUPITER Ace wanted software hardware books. W H Y Forth books. Ace used etc. Phone Cheltenham (0242) 516364

WANTED CBM64 with leads and manual will pay £100. Phone Hornchurch 45284

SWAP my BBC B + cassette player and joysticks worth £1200. Want CM64 + 1541 disc drive + C2N player and a lot of software. Phone after 6.30pm 01-847 5098

A2F CHEETAH Ram pack swap for any programmable interface and joystick or sell for £20. Also 32 originals including Pyjamarama, Avalon, Underwurlde, Tir Na Nog half-price each. O n o. Phone Aboon 2346

WANT to swap your CPC464 colour monitor or Atari 800 + disc drive + software for Spectrum £450 + of software? Tel Heath 756 952. Ask for Andrew after 5pm. Hurry!

48K SPECTRUM + some software incl Hobbit, Jetman, Daleys Decathlon, Timegate, Automenagerie, Hunchback. Swap for Oric Atmos and software or sell for £85. Signalman Cole D J 24711865 Delta Troop 3 Sqn 8th Signal Regiment Catterick Garrison North Yorkshire

WANTED Amstrad pen pals to swap ideas programs listings etc. Write to Paul Hankin, 17 Whitcliffe Grange, Richmond, North Yorkshire DL10 4ES

ZX printer wanted with leads. Must be in good condition. Ring (0532) 504684 with offers

WANTED Commodore 64 compatible printer or Commodore printer and cable must not be Commodore printer p otter. £70 offered. Any takers. Phone Stuart on 031 263 3034

For Sale

AMSTRAD CPC464 with colour monitor. Six months old, very good condition. Inc manual software plus leads. Price £300 ono. Derek Arnold, 15 Ennerdale Road, Coleshill, Birmingham B46 1EP. Tel 0675 62964

TEXAS TI99/4A large selection of Modules, cassettes, speech synthesizer, magazines, etc. 041-887 8284 or SAE for list. Stewart, 5 Main Road, Paisley PA1 2TG

AMSTRAD original software. War Zone, Software Star, Football Manager, American Football, Hunter Killer, Viking Word Processor. £4.60 each inclusive of postage. C Kiokkaris, 47 Fernbank Avenue, Sudbury Hill, Wembley, Middlesex HA0 2TT

BARGAIN two 8" disc drives with case and PSU £90. Also Vertex TRW data point console (not working) £20. Tel 01 881 1207

AMSTRAD CPC 464 colour monitor plus £30 of s/w + guide (worth £30). Excellent condition. Still under guarantee. £285 no offers. Tel 0634 71681 after 5pm

IBM 5251 terminal, the printer with suspected fault. Offers to McPherson. Tel 057 87063

TELETEXT adaptor for BBC £140. 6502 second processor £100. Tel 01-459 3184

AMSTRAD CPC 464 colour cover joystick £2 0. S Brooks, Preston 633333 ext 29 (Day)

UNUSED Hewlett Pakard 1056 8084 processor 256K Ram (710K/Byte) 3½ inch twin disc. Touch screen control printer s/ware manuals etc. £15000 or offers. Private sale only. Tel 0256 53358 ext 6 or (0252) 520222

SHARP MZ80A 48K built in monitor & cassette. Hisoft Pascal, Kuma Basic Compiler, all manuals & s/w. Dust cover. Excellent condition. £250 o n o. Tel Staplehurst (Kent) w/e or eves 892391

VTX5000 Prestel/Micronet Interface for the Sinclair Spectrum with Prestel application form and Prestel directory. Excellent as new condition in original packaging. Only £40. Tel Horley 771876 evenings. Will post

DEMON multi baud modem for sale. Only six weeks old. For use on BBC + disc system. Software on Rom. Tees software for tape system 300/300 1200/75 baud. Only £75. 0375 828926

AMSTRAD CPC464 colour 6 months old complete with joystick plus £100 worth of software. All for £300. Tel 0532 524785

ORIC Atmos 48K with manual, leads, demo tape, some s/w £90. Southport 25187

TI99/4A joystick interface £2.50. Blasto, Zero Zap, Hunt the Wumpus £6.50 each. Oldies but goodies. 1 and 2 Adventureland £3.50 each. Phone (0232) 623001. 32 Glenshesk Park, Dunmurry, Belfast BT17 9BA

LOTS of hardware, software and books for Spectrum. Reasonable prices. Phone (0467) 42425 and ask for Nick

AMSTRAD s/w Kong 2, Pyjamarama, Sourcery, Mini-Office, Dark Star, 3D Starstrike, Oh! Mummy, B C 2, D T s Decathlon. All originals. Phone Steve (0703) 787586 or write to 377 Winchester Road, Bassett, Soton SO1 7DJ

AMSTRAD originals Tasword 464 (tape) £12.50, Micropen database (disc) £35. Both with manuals. Phone Marc any time on 01 861 5686

MEMOTECH MTX 500 speaker £25 worth of magazines, 4 books, £80 software, two joysticks. Worth over £350 in total. Offers to Phil Grossman. Tel 684738 or swap with Electron with joysticks

EASY SCRIPT for Commodore 64. Used only once. £30 o n o. Also wanted old Vic 20 type C2N. Bristol 645441

SHARP MZ80K 48K computer b/w built in monitor and cassette unit. Some software £110. Sord M5 and some software £35. Swap involving Texas peripherals considered. 0408 78036

QL version 2 Psion programs for sale Quill, Easel, Abacus and Archive with documentation. All unused. £30 o n o. Tel York (0904) 729164

MA Lynx and disc drive with printer interface and software £250 o n o. Tel (0524) 415838 evenings only

SOFTWARE for sale. For Amstrad CPC 464. All originals: Detective, Star Commando, Slow Days, Snooker and Relics in Time. £5 each p&p included. 01 328 8221

CUMANA 40 track disc drive, leads, manuals, formatting disc, integral power supply. Suitable for BBC £75. Tel (0272) 684740

CASIO MC45 electronic keyboard G C 8 rythms 8 sounds. Vibrato 2nd sustain. Selling for £65 inc an adapter. Tel (061) 760 5063 after 5pm

SEIKOSHA GP 100A printer compatible parallel interface £100. Tel Biggen Hill (0858) 74133 (Dragon s/w + books)

VETREX computer games system, monitor, joystick & 4 cartridge games £38. Tel Borth Heath 51121

UNOPENED Level 1 Econet software and printer server. Half price. Tel Mortlesham 7130

AMSTRAD CPC464 with colour monitor £250. Excellent condition. Add two games, two programming books, keyboard cover and blank tapes for £35. All above for £275. Tel 0283 37734

ORIC 48k plus Oric printer with spares plus various software (arcade and adventure games, word processor, assembler). All boxed with manuals. Great value at £300 ono. Tel 0402 73008?

ADVENTURE HELPLINE

Ship of Doom on Spectrum How do you break the ice and get the key? Vicky Cocket, Norway FM, Whitestone, Exeter, Devon EX4

The Hulk on Spectrum How do you bring the ants to ant man? Koen Hartevakr, Ebsengaard 47 Boxtel, Holland

The Hobbit on Amstrad How do you escape from the goblin's dungeon and how do you get on the barrel to float safely down the river? Linda Wright, 18 Longfield Gardens, Tring, Herts

Wrath of Magra on Spectrum. How do I complete Part 1? I have deciphered the writings on the wizard's tomb and have visited all the locations. Stephen Sumner D1961681 3F Mess HMS Berwick BFPO (Ships) London

Lords of Time on Amstrad. I have all the nine ingredients but I am unable to cast them into the cauldron. Mr Weaver, Tumbledown, 80 Carmodale Avenue, Great Barr, Birmingham B42

Sorcerer of Claymore Castle on Commodore 64 What do I do at the empty rooms and how do I get over not feeling well and dying? Mrs J Slatter, 81 Gordon Road, Dovercourt, Harwich, Essex

Eureka on Commodore 64 No 3. What icon do you play to rescue Merlin? No 4. How do you open the pill Box door? David Mair, 40 Hopefield Avenue, Portrush, Co Antrim, N Ireland

Witches Cauldron on Spectrum How do I get a drop of moonshine (Whiskey)? How do I turn into a bat? Glyn Marshall, 66 Adamsrill Road, Sydenham, London SE26

Hampstead on Commodore 64. I am wearing a business suit and have a credit card. I am walking the west end – what do I do next? J S McMullen, 20 Mayfair Gardens, South Shields, Tyne and Wear

Sherlock on Spectrum How do you open the wall safe safely? Where are the keys to Tricia's house? Help! Alan Young, 8 Essex Close, High Crompton, Shaw, Oldham, Lancs OL2 7EA

Fantasia Diamond on Spectrum How do you escape the guardian when first entering the castle via the broken window? J A Lockerry, 44 Hyde Place, Aylesham, Canterbury, Kent.

Eureka – Roman on Spectrum How do you get the eagle, cure leprosy, win the chariot race? What is in the catacombs? John Lock, 3 (MBQ) TA Centre, Llandaff North, Cardiff CF4

The Quest on Vic20 What do I say to the dwarf to get him to tell me the magic word? Steve Hankinson, 2 Sunflower Close, Springfield, Chelmsford, Essex

Forest at Worlds End on Amstrad How do I get the key off without being killed? V Glendinning, 81 Finchdale Terrace, Jarrow, Tyne and Wear NE32.

Macbeth I and III on Commodore 64. How do I defeat McDonwald in Part I? How do I move at all in Part II? D J Jones, 4 St Annes Close, Guys Marsh, Shaftsbury SP7

Prisoner of the Village on Spectrum. How do I get out of the steam cabinet in the sauna? How do I use the objects found to build a boat? Gareth Adams, 11 Brooklyn House, Anerley Road, London SE20

Hampstead on Spectrum How and what do I find in the industrial estate? Steve Smith, Castrovalvay, 4 Stake Lane, Lower Halling, Rochester, Kent

Snowball on BBC How do I get a bubble helmet? Michael Torraleus, 11 Douglas Terrace, Stirling, Scotland.

Fantasia Diamond on Amstrad How do I get through the musical door? How do I cross the river? Help! Louise Pitt, 89 Artway, Old Rose, Liverpool 10

Invincible Island on Spectrum. Where are the seven bits of parchment? I already know where less are. Steven Seagell, Torwood Mill Lane, East Ogwell, Newton Abbot, South Devon

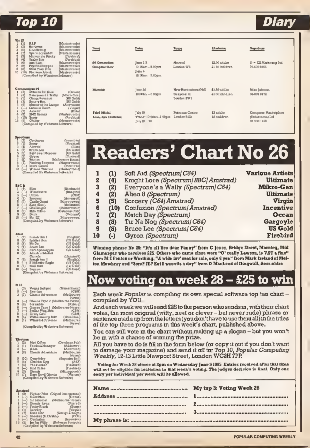
Fantasia Diamond on Amstrad. How do you cross the river and/or open the manhole? P J Long, 3 Victoria Place, Bedminster, Bristol BS3

Jewels of Babylon on Amstrad. Help! I am weaponless!! Where is the spear and the gun? How do you get past the octopus and the crocodile? Andrew Walton, Finlow Hill Cottage, Over Alderley, Macclesfield, Cheshire SK10

Super Spy on Spectrum Where do you go to and what do you get from London? Bruce Stubbs, 27 Ayresome Terrace, Roundhay, Leeds 8, W Yorks

Valkyrie 17 on Commodore 64. How do you see the aqualung and shaving foam and get into the schloss? Liz O'Brian, 2 Bridle Path, Madeley, nr Crewe, Cheshire CW3 9EL

Gremlins on Spectrum. How do you kill the gremlin in the bedroom to get the flashlight? I have the sword, the camera, pop bottle, ladder, remote control and Gizmo. Symon Readie, 80 Tower Street, Treforest, Pontypridd, Mid Glamorgan, S Wales.



Vic 20

1	(1)	R.I.P.	(Mastertronic)
2	(2)	Re-Bounder	(Mastertronic)
3	(5)	Doodlebug	(Mastertronic)
4	(7)	Space Scramble	(Mastertronic)
5	(3)	Mickey the Bricky	(Firebird)
6	(4)	Snake Bite	(Firebird)
7	(6)	Bat Rats	(Mastertronic)
8	(8)	Psycho Shopper	(Mastertronic)
9	(9)	New York Blitz	(Mastertronic)
10	(10)	Phantom Attack	(Mastertronic)

(Compiled by Winstons Software)

Commodore 64

1	(3)	Brands Rat Race	(Ocean)
2	(4)	Everyone's a Wally	(Mikro-Gen)
3	(1)	Grogs Revenge	(US Gold)
4	(3)	Bounty Bob	(US Gold)
5	(6)	Master of the Lamps	(Activision)
6	(—)	Gates of Dawn	(Virgin)
7	(7)	Airwolf	(Elite)
8	(8)	BMX Racers	(Mastertronic)
9	(10)	Booty	(Firebird)
10	(9)	Chiller	(Mastertronic)

(Compiled by Websters Software)

Spectrum

1	(2)	Confuzion	(Incentive)
2	(1)	Booty	(Firebird)
3	(4)	Airwolf	(Elite)
4	(5)	Bruce Lee	(US Gold)
5	(3)	Raid over Moscow	(US Gold)
6	(3)	Gyron	(Firebird)
7	(6)	Starion	(Melbourne House)
8	(7)	Finders Keepers	(Mastertronic)
9	(—)	Moon Cresta	(Incentive)
10	(—)	Wizard Warrior	(Mastertronic)

(Compiled by Websters Software)

BBC B

1	(1)	Elite	(Acornsoft)
2	(—)	Winnieware	(Imagine)
3	(—)	Ultron	(CSM)
4	(8)	Snooker	(Acornsoft)
5	(6)	Castle Quest	(Micropower)
6	(—)	Elite (Disc)	(Acornsoft)
7	(—)	Challenger	(Mastertronic)
8	(5)	Mini Office	(Database Pub)
9	(5)	Duck	(Firebird)
10	(—)	Mr EE	(Micropower)

(Compiled by Websters Software)

Atari

1	(5)	Smash Hits 1	(English)
2	(3)	Spitfire Ace	(US Gold)
3	(4)	Mr Do	(US Gold)
4	(1)	Bruce Lee	(US Gold)
5	(4)	Fort Apocalypse	(US Gold)
6	(9)	Attack of Mutant Camels	(Llamasoft)
7	(8)	Smash Hits 2	(English)
8	(—)	F15/Strike Eagle	(US Gold)
9	(3)	Stax Max	(US Gold)
10	(—)	Zaxxon	(US Gold)

(Compiled by Websters Software)

C 16

1	(3)	Vegas Jackpot	(Mastertronic)
2	(—)	Exorcist	(CBM)
3	(7)	Classic Adventure	(Melbourne House)
4	(—)	Classic Tape 2	(Melbourne House)
5	(6)	Scramble	(Anirog)
6	(—)	Games Tape 1	(Melbourne House)
7	(—)	Stellar Wars/Blitz	(CBM)
8	(—)	Crazy Golf	(CBM)
9	(4)	Williamsburg Adv	(Microdeal)
10	(1)	Wizard & Princess	(Melbourne House)

(Compiled by Websters Software)

Electron

1	(2)	Mini Office	(Database Pub)
2	(1)	Football Manager	(Addictive)
3	(—	Elite	(Acornsoft)
4	(8)	Classic Adventure	(Melbourne House)
5	(10)	Overdrive	(Superior Soft)
6	(1)	Chuckie Egg	(A&F)
7	(5)	The Hacker	(Firebird)
8	(—)	Bird Strike	(Firebird)
9	(3)	Ghouls	(Micropower)
10	(7)	Dare Devil Dennis	(Visions)

(Compiled by Websters Software)

Amstrad

1	(8)	Fighter Pilot	(Digital Integration)
2	(—)	Decathlon	(Ocean)
3	(—)	Sir Lancelot	(Melbourne House)
4	(—)	Gremlin Lynx	(Durrell)
5	(—)	Fruity Frank	(Kuma)
6	(1)	Sorcery	(Virgin)
7	(7)	Dark Star	(Design Design)
8	(—)	Snooker (S. Chisholm)	(CDS)
9	(—)	Confuzion	(Incentive)
10	(3)	Jet Set Willy	(Software Projects)

(Compiled by Websters Software)

Event	Dates	Venue	Admission	Organisers
6th Commodore Computer Show	June 7-8 10.30am – 6.00pm June 9 10.30am – 5.00pm	Novotel London W6	£2.00 adults £1.00 children	D + CS Marketing Ltd 01-630 6165
Microfair	June 22 10.00am – 6.00pm	New Horticultural Hall Greycoat St London SW1	£1.50 adults £1.00 children	Mike Johnson 01-801 0122
Third Official *Acorn User Exhibition*	July 18 Trade: 10.00am–1.00pm July 19 – 20	Barbican Centre London EC2	£3 adults £2 children	Computer Marketplace (Exhibitions) Ltd 01 930 1520

Readers' Chart No 26

1	(1)	Soft Aid *(Spectrum/C64)*	**Various Artists**
2	(4)	Knight Lore *(Spectrum/BBC/Amstrad)*	**Ultimate**
3	(2)	Everyone's a Wally *(Spectrum/C64)*	**Mikro-Gen**
4	(2)	Alien 8 *(Spectrum)*	**Ultimate**
5	(5)	Sorcery *(C64/Amstrad)*	**Virgin**
6	(10)	Confuzion *(Spectrum/Amstrad)*	**Incentive**
7	(7)	Match Day *(Spectrum)*	**Ocean**
8	(8)	Tir Na Nog *(Spectrum/C64)*	**Gargoyle**
9	(8)	Bruce Lee *(Spectrum/C64)*	**US Gold**
10	(-)	Gyron *(Spectrum)*	**Firebird**

Winning phrase No 26: "It's all lies dear Fanny" from C Jones, Bridge Street, Maesteg, Mid Glamorgan who receives £25. Others who came close were "O' really Lawson, is VAT a fine" from M S Fenton of Worthing, "A wide lav' seat for sale, only 8 yen" from Mark Ireland of Melton Mowbray and "Sore? Ill? Eat 8 weevils a day" from D MacLeod of Dingwall, Ross-shire

Now voting on week 28 – £25 to win

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 28 closes at 2pm on Wednesday June 5 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .... **My top 3: Voting Week 28**
Address .... 1..
.... 2..
.... 3..
My phrase is: ....

New Releases

PASSWORD

Frederick Forsyth has made a lot of money over the years writing very popular, and sometimes, very entertaining 'documentary'-type novels The kind of thing that gets serialised in the *Daily Mail*.

I doubt that they'll be publishing the listing of this Forsyth spin-off, however, a strategy/adventure program published by Hutchinson based on his latest opus, *The Fourth Protocol*.

What I've seen is a pre-production copy of the Commodore version, and it looks good. The package consists of three independent programs, roughly following the main plot of the book involving the detonation of a nuclear device in Britain, *The Nato Documents*, *The Bomb* and *The SAS Assault*. To get to the latter however, you need passwords given on completion of the other two

The whole affair is icon-driven (as in *Shadowfire*), although the play is more of a strategic nature

From what I've seen so far, this one is going to appeal to established adventurers in a big way – and all budding MI5 officers.

Program *The Fourth Protocol*
Price *£12 95*
Micro *CBM64/Spectrum*
Supplier *Hutchinson Computer Publishing 17 21 Conway St London W1*

REGISTER

Several companies have tried to teach machine code through a program package and the real worth of the end results have been doubtful One series of packages which I think will help – even if it doesn't get you a job with Ultimate – is Dream Software's *Machine Code for Beginners* which is now available on several micros including the Electron C16 and Plus/4

What you get is a package that lets you try out short machine code programs without risk of crashes – you can see what is happening, register by register and on the stacks, and thus begin to grasp the point and logic of all those numbers

A well written booklet leads you through each new instruction and the use of stacks, flag setting, indexing and the like

It's well judged in terms of pace of learning—one new command at a time, nothing too complicated to discourage you early on For example you may choose first of all to express all commands in binary rather than hex, since those OAs and 7Cs put a lot of people off.

Program *Machine Code for Beginners*
Price *£8 95*
Micro *Commodore etc*
Supplier *Dream Software PO Box 64 Clifton Bristol BS8 2RG*

BLAST-A-MINUTE

All praise to the likes of Mastertronic and Firebird I say, who have proved that you can produce adequate programs for a genuine pocket-money price – and the quality of budget software seems to be improving all the time

Make Music with Mastertronic may be handicapped with an atrocious title, but in fact is an altogether adequate music utility for the Commodore 64

Using a joystick-controlled cursor, you can compose a one-part melody of up to seven 'pages', each page comprising about four bars depending on the time signature, displayed on a stave. No sharps or flats allowed – but who's complaining at the price? Melodies can be loaded or saved – even printed out in full musical notation. Can't be bad.

As a simple introduction to musical notation and composition, it's a winner

Program *Make Music*
Price *£1 99*
Micro *CBM 64*
Supplier *Mastertronic, Park Lorne, Park Road, London NW8*

TEXT ONLY

Now, adventurers seem to me to be, on the whole, a serious lot And let's face it, if the fate of Tharg was falling squarely on your shoulders, you'd be less than carefree also However, an encouraging trend seems to be starting in Silly Adventures (perhaps initiated by *Quest for the Holy Joystick* and *The Tebbit*) – and now Firebird have got in on the act with *The Helm*

Constructed using Gilsoft's excellent Quill, Simon Jay has produced a text-only adventure which is the antidote to those more dour Quests

"Give me your next wondrous command, oh all bitelligent one," states the program This joyously patronising tone continues throughout the quest for the Helm of Immortality Fab

Program *The Helm*
Micro *Spectrum/CBM 64*
Price *£2 50*
Supplier *Firebird Software Wellington House Upper St Martins Lane London WC2*

This Week

Program	Type	Micro	Price	Supplier
Frank N Stein	Arc	Amstrad	£7.77	Amsoft/PSS
Gatecrasher	Arc	Amstrad	£7 77	Amsoft
Hi Rise	Arc	Amstrad	£7 77	Bubble Bus
Jammin	Arc	Amstrad	£7 77	Amsoft
The Key Factor	Ed	Amstrad	£7 77	Amsoft
Operation Caretaker	Ut	Amstrad	£5.95	Global
The Antagonists	Adv	BBC B	£5 70	Addison Wesley
Chicane	Arc	BBC B	£7 77	Kempston
Creative Sound	Ut	BBC B	£7 77	Acornsoft
Cave Fighter	Arc	Commodore C16	£6 99	Bubble Bus
The Bulge	S	Commodore 64	£9 99	Lothlorien/APS
The Captive	Arc/adv	Commodore 64	£1 99	Mastertronic
Taskmaster	Arc	Commodore 64	£2.50	Sparklers/Creative Sparks
Hustler	S	Einstein	£12.95	Bubble Bus
Boardello	S	Einstein	£12.95	Bubble Bus
Empire	S	Electron	£7 77	Shards
Chiller	Arc	MSX	£1 99	Mastertronic

New Releases

CARTOON

Icon Software have been around for quite some time now, quietly releasing predominantly BBC software of an OK, if not spectacularly good, standard.

This time they might have a biggie on their hands, with *Contraption*.

On one level you could describe it as an eleven-screen 'collect and dodge' game, à la *Jet Set Willy*. "Boring Ned!" I hear the assembled millions cry. However, what drags *Contraption* out of this class are the brilliant graphics.

Programmers Dave and Helen Mann have done a first class job; for once, the blurb on the cassette case claiming 'cartoon-like quality' really is justified.

The collision detection may not be superb, but the first few screens play well, proving fairly addictive to the weaker members of the *Popular* team.

What with this, *Knight Lore*, *Elite*, and *Revs*, this is a vintage time for BBC games players.

At almost nine quid *Contraption* is a touch pricy – but it don't half look good on the telly.

Program *Contraption*
Price *£8.95*
Micro *BBC B*
Supplier *Icon Software*
98 High St,
Gosforth
Tyne & Wear
ME3 4AA

TOO SLOW

At last the first few code-written games are beginning to appear for the QL – some goodish, some not so good.

Firmly in the latter category is Eidersoft's *Zapper*.

Written by the soon-to-be legendary Janko Mrsic-Flogel, author of the official Sinclair QL game, *Caverns*, (*Popular Computing Weekly*, May 9) this is a distinctly inferior product.

What you get is an *Invaders-Galaxian* hybrid – and not a particularly good one at that. Eight screens of unanimated sprites await you, ranging from portcullises to sample bottles, as you manoeuvre your little spaceship left-right at the bottom of the screen, zapping away. The action really is too slow at the start of the screen, as the 20-odd nasties descend to get you, and although it speeds up towards the end of the wave (due to less scrolling) the game never satisfies.

After eight waves, the whole cycle starts again ... not even perceptibly faster.

I'm afraid this will not do at all.

Program *QL Zapper*
Price *£14.95*
Micro *Sinclair QL*
Supplier *Eidersoft*
The Office Hall
Farm
North Ockenden
Upminster
Essex

LEGO MAN

Considering the graphic capabilities of the Amstrad 464, Amsoft should be somewhat ashamed.

Roland, the hero of *Roland in Space*, who is supposed to be intrepid but looks rather more like a Lego man has to journey around the galaxy retrieving the scattered bits of the "galaxy's most feared super-weapon".

There are seven planets, and each one is a different arcade game screen. You have to wander around, moving left and right or jumping – funnily enough, if you keep on jumping you start flying. I never realised that you could jump on thin air.

Most of the features I've seen so far are really pretty standard. The monsters are nothing special – everything seems to be block graphics. Look at what Ultimate have managed to do with the same machine, then look at *Roland*.

If that hasn't made up your mind, look at the price – £8.95 on tape, £12.95 on disc. Come off it Amsoft, truck drivers are cannier than you seem to think.

Program *Roland in Space*
Price *£8.95*
Micro Amstrad
Supplier *Amsoft*
169 Kings Road
Brentwood
Essex

ALIGNED

Operation Caretaker may sound like a well organised Fifth Form prank, but in fact is a tape care and cleaning kit from Global Software.

This kit consists of two cassettes – a head cleaner, – demagnetiser and a test program, together with a small screwdriver.

Running the test program gives a histographic representation of the cassette deck performance – plus some figures, number of read errors, percentage speed error and overall read status.

This, in itself, would probably be a useful kit to have ... after all, read errors are most annoying things.

However, I do have some doubts about the package. The instructions are sparse – and are not machine specific, in that they are supposed to cater for the whole range of machines the kit is produced for. They don't. After several attempts, several members of the *Popular* team could not work out how to align the heads on the Amstrad. Our

This Week

Fantasia Adventure	Adv	QL	£8.50	S B Software
Hungry Harry in the Haunted House	Arc	QL	£9.95	Snoasoft
The Bulge	S	Spectrum	£9.95	Lothlorian/APS
Operation Caretaker	Ut	Spectrum	£9.95	Global
Scoredraw	Ut	Spectrum	£7.95	Naigram
Tapper	Arc	Spectrum	£7.95	US Gold/Sega
Underneath the Overgrowth	Adv	Spectrum	£2.00	Workhouse
Fourth Encounter	Arc	Vic 20	£2.95	Sparklers/ Creative Sparks
Poolster	Ut	ZX81	£13.00	Naigram

Key **Ad** – adventure **S** – strategy simulation
Arc – arcade **Ut** – Utility
Ed – education

Pick of the week

A KNOCKDOWN

The Way of the Exploding Fist is quite simply the best program I have seen in a long time.

Your character has to take on a series of opponents in one-to-one martial arts bouts, using the whole gamut of moves made familiar by so many Bruce Lee movies

You score in two different ways You have a points total, which depends on knocking the enemy down and on how long it takes you to finish each bout. You win a bout by scoring two 'knockouts' If you don't make your moves gracefully enough, you only score half a KO

The graphics are superb, although Melbourne House have gone for a very Laura Ashley pastel look (like the Dulux ads on TV)

The characters are very well depicted, and they move smoothly and realistically The backgrounds are very oriental looking, with Japanese pagados, enormous statues of Buddha, rooms with tatami mats on the floor – somebody has obviously lavished a lot of attention on this game

I would have preferred the colours to have been a bit stronger, as I don't really go for the washed-out look – but it should go down well in Hampstead.

The music on our version was plangent, just as good oriental music should be, but Melbourne House are working on adding all the proper sound effects as well – oof aagh, pow and so on

It looks like it's going Melbourne House's way again – they're back on form

Program *The Way of the Exploding fist*
Price *£9 95*
Micro *Commodore 64*
Supplier *Melbourne House Castle Yard House Castle Yard Richmond TW10 6TF*

read status was quoted as 'Bad' . although I can't say that our machines have ever given us any trouble

Mmmmm. what does this all mean?

Program *Operation Caretaker*
Price *£9.95*
Micro *Amstrad/BBC/Spectrum*
Supplier *Global Software 33 Shelgate Road London SW11*

YOUNG SET

Hotch Potch is aimed at younger children, which might just about make it worth buying

The idea is that you get a cute little picture which jumbles itself up – you then have to reassemble it by moving the pieces around

It's really a computerised combination of a sliding block puzzle and a Rubik's Cube

The picture is divided into a three by three grid, and commands are easy – you move either a column or a row, and you have to try to solve the problem in the least moves possible

There are ten screens of varying complexity, including a moon rocket, a map of the British isles, and various naive drawings, presented in white on blue

Some screens look easy enough for small children, but others seem to be quite difficult in terms of shape recognition.

At £1 99, I'm a little undecided about this program – but then, contrary to what the rest of the office may say, I'm not a small child

Goo

Program *Hotch-Potch*
Price *£1 95*
Micro *Spectrum*
Supplier *Mastertronic Park Lorne Park Road London NW8*

DICE THROW

CP Software has an excellent reputation built up over several years now of providing computer versions of the classic boardgames

Of the various board games backgammon is one of the most frequently offered on computer and CP Software's version of this game on the Spectrum was one of the best in terms of playing ability

Now that version has been improved and made available on the Amstrad.

Amstrad *Backgammon* has virtues of an improved screen display and faster action. Roughly the game – if you aren't familiar with it – involves taking turns to move around a board using a dice a number of counters The first to get all their pieces home is the winner Pieces are best moved in pairs since a single one may be hit ie, returned to the beginning and made to start again. Simple? Well, no actually, far from it.

It's easy to program a poor version of Backgammon and like chess very difficult to make its play subtle

The CP version plays as well as any I've seen The screen display is neat and the computer will even throw the dice for you

It's for players rather than for people who want clever screen displays

Program *Backgammon*
Price *£8 95*
Micro *Amstrad*
Supplier *CP Software 10 Alexandra Road Harrogate N Yorkshire HG1 5JS*

This Week

Acornsoft Betjeman House, 104 Hills Rd, Cambridge BCB2 1LQ 0223 316039 **Addison-Wesley**, Finchampstead Road Wokingham Berkshire RG11 2NZ 0734 794000 **Amstrad** Brentwood House, 169 Kings Road Brentwood Essex CM14 4EF 0277-228888 **Bubblebus**, 67 High Street Tonbridge Kent TN9 1RX 0732 355962 **Global Software**, 33 Shelgate House Road, London SW11 1BA 01-228 6730 **Lothlorien**, Liberty House, 222 Regent Street, London W1R 7DB 01-439 0666 **Kempston**, address to come **Mastertronic**, Park Lorne 111 Park Road London NW8 01-402 3316 **Nalgram Software**, Soho Synth House, 18a soho Square London W1V 5FB **SB Software**, 20 St NMicholas Street Diss, Norfolk **Shards**, 189 Elton Road Ilford Essex IG1 2UQ 581 7666 **Sneweoft**, 5 Bousfield Crescent Newton Aycliffe Durham 0325-312417 **Workhouse**, 37 Lodge Road Walsall West Midlands WS5 3JY **US Gold** Unit 10, The Parkway Industrial Centre Henage Street Birmingham B7 021-359 3020

Ziggurat

Confused?

A recent report of the HM Inspectorate concerned with the teaching of mathematics (1) follows very closely in the line of thinking set by the 1982 Cockcroft Report (2)

There has been quite a deal of excitement generated by the HMI report, principally it seems because the use of calculators is encouraged, and because the place of the microcomputer in teaching is emphasised.

I find the report interesting for other reasons For example, the report seems highly confused and doesn't talk about mathematics in any real sense

I am left with the impression that the use of micros is encouraged due to a benign ignorance, and not on the basis of an informed analysis

The report states, correctly, that micros are a powerful way of doing mathematics, and thus programming should be included in mathematics lessons (if not taught elsewhere) It notes that 'such programming does not need to be highly sophisticated. It may be a form of Logo, or the early stages of a language such as Basic'. The implication is that Logo is not better than an easy-to-learn elementary version of Basic.

A good idea – children programming – is lost in ignorance or the characteristics of both Logo and Basic. The best reason for learning programming is not to learn mathematics, but the fact when approached in the appropriate way programming is also an exercise in learning to think constructively, an exercise in problem solving It is very important that computers should not become the province of computer studies or of mathematics alone.

Both the HMI and the, earlier, Cockcroft reports do not attempt to explain why mathematics is so different from other subjects Why is mathematics so easy for some and so difficult for others? Mathematics is one of the most human of endeavours, being totally invented, and the key to mathematics lies in its artificial nature Yet the reports attempt to dodge this aspect It is because the computer is almost as artificial as mathematics that computers are so powerful, and that is where the two coincide

In the Cockcroft report we read that 'mathematics provides a means of communication which is powerful, concise and unambiguous' The HMI report suggests that teaching should emphasise the importance of mathematics in the analysis and communication of information and ideas, together with mathematics' great utility as a tool. The HMI report also stresses that mathematics is about relationships, and that mathematics can assert a fascination, beyond its utilitarian value I cannot see how these factors distinguish mathematics from, say, English or many other subjects

One of the benefits of using programming languages such as Logo is the way in which the language itself helps the individual learn the long-term benefit of a top-down approach to thinking The top-down approach solves a problem by establishing what has to be done in general terms, and then (by successive refinement of the objectives) the solution is developed. One of the worst ways of solving a problem is to work from the bottom up, solving little problems in the hope that somehow the global problem will be solved

Yet the HMI report deliberately encourages curricula which have been designed from what they term the 'bottom up' That is, the curriculum should be determined by working from what the slowest child can obtain, and extending the range as level of attainment increases Surely this is the wrong approach to mathematics teaching

Boris Allan

Puzzle

Find the values

Puzzle No 160

1	▨	2		3
4			▨	
6			7	
	▨	8		
9			▨	

Across	Down
2 $C^2 + 2$	1 $A * B$
4 A	2 $(A + C)^2$
6 A^3	3. $(A + B + C)^2$
8 $(B - D) * (D - 1)$	5. D
9. 3A	7 C

Can you work out the values of A, B C and D that fit the puzzle and the clues?

Solution to Puzzle 155

There were 1729 boxes arranged in a block with sides 7, 13 and 19 respectively One fewer (1728) could be restacked into a 12 × 12 × 12 arrangement.

```
10 LET D=1
20 LET N=1
30 LET T=N*(N+D)*(N+2*D)-1
40 LET C=T↑(1/3):LET C=VAL(STR$(C))
50 IF C=INT(C) THEN PRINT N;D T;C
60 LET N=N+1
70 IF C>100 THEN LET D=D+1:GOTO 20
80 GOTO 30
```

The program calculates successive orders of cuboid numbers with the dimension having a common difference (D) An upper limit of 100^3 is applied, and when the total exceeds this sum, the smallest dimension (N) is reset, and the difference incremented by one.

The smallest value with all dimensions greater than one is given by N = 7, D = 6.

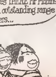
Winner of Puzzle 155

The winner of Puzzle No 155 is Dave Stanford of Kinross, Tayside, who receives £10

Rules

If the puzzle can be sensibly solved using a computer then the winner will have included a listing of the program used to find the correct answer The closing date for Puzzle 160 is June 20

The Hackers



CRL SOFTWARE PRESENT

RICHARD O'BRIEN'S

THE ROCKY HORROR SHOW

PLAY IT!